

# Zirconium Powder

**Formula:** Zr

**Percentage Purity:** 99.2%

**Maximum Particle Size:** 45µm

**Weight:** 2000g

**CAS Number:** 7440-67-7

**UOM Code:** 151-149-03

**SKU:** 1000050955-group

**Product Code:** ZR00-PD-000115

## Material Properties for Metals

### Atomic Properties

Element	Value
Atomic number	40
Crystal structure	Hexagonal close packed
Electronic structure	Kr 4d <sup>2</sup> 5s <sup>2</sup>
Valences shown	2,3,4
Atomic weight( amu )	91.22
Thermal neutron absorption cross-section( Barns )	0.182
Photo-electric work function( eV )	3.8
Natural isotope distribution( Mass No./% )	96/ 2.8
Natural isotope distribution( Mass No./% )	92/ 17.1
Natural isotope distribution( Mass No./% )	91/ 11.2
Natural isotope distribution( Mass No./% )	94/ 17.5
Natural isotope distribution( Mass No./% )	90/ 51.4
Atomic radius - Goldschmidt( nm )	0.16
Ionisation potential( No./eV )	4/ 34.34
Ionisation potential( No./eV )	Jun-99
Ionisation potential( No./eV )	2/ 13.13
Ionisation potential( No./eV )	1/ 6.84
Ionisation potential( No./eV )	5/ 81.5
Ionisation potential( No./eV )	3/ 22.99

### Mechanical Properties

<b>Element</b>	<b>Value</b>
Material condition	Polycrystalline
Material condition	Soft
Poisson's ratio	0.38
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Bulk modulus( GPa )	89.8
Bulk modulus( GPa )	89.8
Tensile modulus( GPa )	98
Tensile modulus( GPa )	98
Hardness - Vickers( kgf mm <sup>2</sup> )	85-100
Tensile strength( MPa )	350-390
Yield strength( MPa )	250-310

## **Electrical Properties**

<b>Element</b>	<b>Value</b>
Electrical resistivity( $\mu\text{Ohmcm}$ )	44@20@20°C
Superconductivity critical temperature( K )	0.61
Temperature coefficient( K <sup>-1</sup> )	0.0044@0-100°C
Thermal emf against Pt (cold 0C - hot 100C)( mV )	1.17

## **Physical Properties**

<b>Element</b>	<b>Value</b>
Boiling point( C )	4377
Density( gcm <sup>3</sup> )	6.49@20°C

## **Thermal Properties**

<b>Element</b>	<b>Value</b>
Melting point( C )	1852
Latent heat of evaporation( J g <sup>-1</sup> )	6360
Latent heat of fusion( J g <sup>-1</sup> )	211
Specific heat( J K <sup>-1</sup> kg <sup>-1</sup> )	281@25°C
Thermal conductivity( W m <sup>-1</sup> K <sup>-1</sup> )	22.7@0-100°C
Coefficient of thermal expansion( $\times 10^{-6}$ K <sup>-1</sup> )	5.9@0-100°C