Vanadium Powder

V powder (mp 1890°C, 5.06 barn neutron cross-section) — alloying addition for HSLA steels & Ti-6Al-4V, powder metallurgy, master alloys & fusion research. **SKU:** 1000125676-group
Product Code: V-00-PD-000130

Material Properties for Metals

Atomic Properties

Element	Value
Atomic number	23
Crystal structure	Body centred cubic
Electronic structure	Ar $3d^3$ $4s^2$
Valences shown	2,3,4,5
Atomic weight(amu)	50.9415
Thermal neutron absorption cross-section(Barns)	5.06
Photo-electric work function(eV)	4.3
Natural isotope distribution(Mass No./%)	51/ 99.75
Natural isotope distribution(Mass No./%)	50/ 0.25
Atomic radius - Goldschmidt(nm)	0.136
Ionisation potential(No./eV)	3/ 29.3
Ionisation potential(No./eV)	2/ 14.6
Ionisation potential(No./eV)	5/ 65.2
Ionisation potential(No./eV)	6/ 128
Ionisation potential(No./eV)	1/ 6.74
Ionisation potential(No./eV)	4/ 46.7

Mechanical Properties

Element	Value
Material condition	Hard
Material condition	Soft
Poisson's ratio	0.365
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Bulk modulus(GPa)	158
Bulk modulus(GPa)	158

Element	Value
Tensile modulus(GPa)	127.6
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Izod toughness(J m?¹)	10-136
Hardness - Vickers(kgf mm?²)	80
Hardness - Vickers(kgf mm?²)	150
Tensile strength(MPa)	260-585
Tensile strength(MPa)	530-730
Yield strength(MPa)	170-450
Yield strength(MPa)	515-690

Electrical Properties

Element	Value
Electrical resistivity(µOhmcm)	19.6@20°C
Superconductivity critical temperature(K)	5.4
Temperature coefficient(K?¹)	0.0039@0-100°C
Thermal emf against Pt (cold 0C - hot 100C)(mV)	0.63

Physical Properties

Element	Value
Boiling point(C)	3380
Density(gcm?³)	6.1@20°C

Thermal Properties

Element	Value
Melting point(C)	1890
Latent heat of evaporation(J g?¹)	8975
Latent heat of fusion(J g?¹)	345
Specific heat(J K?¹ kg?¹)	486@25°C
Thermal conductivity(W m?¹ K?¹)	30.7@0-100°C
Coefficient of thermal expansion(x10?? K?¹)	8.3@0-100°C