

H.C. Starck Grain Stabilized Niobium (GSNb)

Category : Metal , Nonferrous Metal , Refractory Metal

Material Notes:

GSNb is a patent pending single-phase micro-alloy that has a grain size of approximately 2 ASTM numbers finer than standard commercial grade niobium. Applications: Grain Stabilized Niobium (GSNb) is primarily used for its superior fine grain size while retaining the properties of commercial grade niobium. this allows for reduced "orange peel" during drawing and forming applications, and other applications where a fine grain size is required. It is used extensively in the industrial diamond market. GSNb's corrosion resistance is equal to commercial grade niobium and finds use in the chemical process industry. GSNb can also be used in sputtering targets for fiber optic applications or architectural glass. In nuclear reactors it has low thermal neutron cross-section and superior corrosion resistance. It is an excellent getter and finds use in high temperature vacuum furnaces, and is resistant to attack by the molten alkali metals found in sodium vapor lamps. Forms Available: Foil, Sheet, Plate. Mechanical Properties of GSNb: GSNb meets the mechanical properties requirements of ASTM B393 Type 2 Commercial Grade Niobium (UNS R04210). Corrosion Resistance: The corrosion resistance of GSNb is identical to that of commercial grade niobium and can be used in all applications where commercial grade niobium is used. Like tantalum, GSNb is resistant to most acids with the exception of hydrofluoric, however it is not as resistant as tantalum to strong acids at high temperature. It should not be used with strong bases (alkalis). Information provided by H.C. Starck.

Order this product through the following link:

http://www.lookpolymers.com/polymer_HC-Starck-Grain-Stabilized-Niobium-GSNb.php

Physical Properties	Metric	English	Comments
Density	8.58 g/cc	0.310 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Vickers	60 - 100	60 - 100	
Tensile Strength	>= 124 MPa	>= 18000 psi	
Tensile Strength, Yield	>= 72.4 MPa	>= 10500 psi	
Elongation at Break	15 %	15 %	
	@Thickness 0.0508 - 0.0991 mm	@Thickness 0.00200 - 0.00390 in	
	20 %	20 %	
	@Thickness >=0.102 mm	@Thickness >=0.00400 in	

Thermal Properties	Metric	English	Comments
CTE, linear	12.8 Åµm/m-Å°C	7.10 Åµin/in-Å°F	
	@Temperature 20.0 - 100 Å°C	@Temperature 68.0 - 212 Å°F	
	0.272 J/g-Å°C	0.0650 BTU/lb-Å°F	

Thermal Properties	Metric	English	Comments
	@ Temperature 27.0 Â°C	@ Temperature 80.6 Â°F	
Thermal Conductivity	52.3 W/m-K	363 BTU-in/hr-ftÂ²-Â°F	
Melting Point	2468 Â°C	4474 Â°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.010 %	<= 0.010 %	
Hafnium, Hf	<= 0.020 %	<= 0.020 %	
Hydrogen, H	<= 0.0015 %	<= 0.0015 %	
Iron, Fe	<= 0.010 %	<= 0.010 %	
Molybdenum, Mo	<= 0.020 %	<= 0.020 %	
Nickel, Ni	<= 0.0050 %	<= 0.0050 %	
Niobium, Nb (Columbium, Cb)	>= 99.50 %	>= 99.50 %	Balance
Nitrogen, N	<= 0.010 %	<= 0.010 %	
Other, each	<= 0.0050 %	<= 0.0050 %	
Oxygen, O	<= 0.015 %	<= 0.015 %	
Silicon, Si	<= 0.010 %	<= 0.010 %	
Tantalum, Ta	<= 0.30 %	<= 0.30 %	
Titanium, Ti	<= 0.030 %	<= 0.030 %	
Tungsten, W	<= 0.050 %	<= 0.050 %	
Zirconium, Zr	<= 0.020 %	<= 0.020 %	

Electrical Properties	Metric	English	Comments
Volume Resistivity	0.0000145 ohm-cm @ Temperature 0.000 - 100 Â°C	0.0000145 ohm-cm @ Temperature 32.0 - 212 Â°F	

Chemical Properties	Metric	English	Comments
Atomic Mass	92.91	92.91	
Atomic Number	41	41	

Descriptive Properties	Value	Comments
Grain Size (ASTM)	6 or finer	for thickness < 0.010"
Olsen Cup Test	0.240"	Foil thickness 0.005 to 0.01"

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