Momentive Performance Materials HCT-40 Titanium Diboride (TiB2) Powder

Category : Ceramic , Boride

Material Notes:

A high purity powder, grade HCT has virtually no second phase contaminants and only low, controlled levels of carbon, oxygen and nitrogen. Alkalis, alkaline earth, and most metals are typically undetectable. Titanium Diboride Powder Titanium Diboride (TiB2) is produced by GE Advanced Ceramics using a continuous chemical process that controls stoichiometry and particle size to create high purity powder. The shape of the processed crystals are flat, hexagonal platelets.When solidified into shapes, the resultant ceramic is electrically conductive, a property very rare among ceramic materials. This makes it valuable in electrical applications and also enables it to be formed into complex shapes using electrical discharge machining (EDM). TiB2 ceramics also combine superior hardness and corrosion resistance with a high melting point (>2900Â°C) and good oxidation resistance to 1000Â°C.Applications: Titanium Diboride powder is a valuable engineering material which can be used in a wide range of specialty applications: (1) electrically conductive composites; (2) complex, sinterable TiB2 shapes; (3) additives for producing specialty ceramic composite materials; (4) refractory material and antioxidant additive that is nonreactive to most molten nonferrous metals and alloys; (5) thermal enhancement additives.Key Properties:Extreme hardness.Nearly as hard as diamond when sintered, TiB2 is tough enough to be used as military armor and is a valuable addition to improve the fracture toughness of ceramic cutting tools and other components.Electrical/Thermal Conductivity An excellent conductor of both electricity and heat makes TiB2 valuable in electronic and specialty applications. Its flat, plate-shaped particles also enhance thermal conductivity when used as a filler in polymeric matrices.Chemical Resistance Titanium Diboride will not react with molten, nonferrous metals including Cu, Zn and Al. This enables TiB2 to be used as crucibles, vacuum metallization components and electrodes when processing these materials.Simplified Fabrication Titanium Diboride may typically be hot-pressed or HIP'd into desired shapes. Additionally, HCT-S powder from Advanced Ceramics can be cold-pressed and sintered into high density, near-net shapes. Electrical conductivity also enables these ceramic forms to be fabricated into close tolerance, complex shapes using EDM techniques.Information provided by Momentive Performance Materials, formerly GE Advanced Ceramics.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Momentive-Performance-Materials-HCT-40-Titanium-Diboride-TiB2-Powder.php

Physical Properties	Metric	English	Comments
Particle Size	14 Âµm	14 Âµm	mean; 99% -325 mesh
Specific Surface Area	0.25 mÂ²/g	0.25 mÂ²/g	

Mechanical Properties	Metric	English	Comments
Modulus of Elasticity	550 GPa	79800 ksi	
Flexural Strength	350 - 500 MPa	50800 - 72500 psi	

Thermal Properties	Metric	English	Comments
CTE, linear	8.10 Âµm/m-Â°C @Temperature 20.0 Â°C	4.50 Âµin/in-Â°F @Temperature 68.0 Â°F	

Thermal Properties	Metric	English	Comments
	55.0 - 125 W/m-K @Temperature 2300 Â°C	382 - 868 BTU-in/hr-ftÂ²-Â°F @Temperature 4170 Â°F	
Melting Point	2850 - 2900 Â°C	5160 - 5250 Â°F	
Maximum Service Temperature, Air	1000 Â°C	1830 Â°F	resists oxidation

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000100 - 0.0000300 ohm-cm	0.0000100 - 0.0000300 ohm-cm	

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