



Boron Nitride (BN) Grade M & M26

Boron Nitride is an advanced synthetic ceramic material available in powder, solid and aerosol spray forms. Its unique properties - from high heat capacity and outstanding thermal conductivity to easy machinability and superior dielectric strength - make boron nitride a truly outstanding material.

Solid Boron Nitride Grade M and M26 are unique advanced ceramics. Composed of boron nitride and silica, they are highly resistant to moisture and have a MIL-I-10A grade of L542, a test requiring immersion in water for 48 hours prior to testing at elevated frequencies. They are suitable for the most severe electrical applications and can be used at temperatures up to 1400°C, and is unparalleled in resistance to thermal shock.

Applications

- Unusually low dielectric constant (k) of 4. The low k and low loss tangent permit unique applications in the MHz and GHz ranges.
- High temperature electrical insulators and vacuum furnace supports which require electrical resistivity, high temperature strength, thermal shock resistance and low chemical resistivity

Typical Physical Properties

Typical Physical Properties	Grade M		Grade M26	
Percent BN:	40		60	
Percent SiO ₂ :	60		40	
	Parallel	Perpendicular	Parallel	Perpendicular
Volume Resistivity (ohm-cm) @RT:	1.7x10 ¹⁵	5.1x10 ¹⁵	6.4x10 ¹⁴	2.9x10 ¹⁵
@150°C:	2.4x10 ¹³	3.3x10 ¹³	2.4x10 ¹³	8.5x10 ¹³
Dielectric Constant (@ 1MHz) @RT:	4.21	3.87	4.48	3.89
microwave frequency: @ RT, 8.8 GHz:	3.86	4.08	3.89	4.28
Dielectric Strength: volts/mil & (volts/mm)				
Sample thickness: 10 mil	1670 (65748)		1690 (66535)	
Tested up to 25kV 25 mil	>1000 (>39370)		>1000 (>39370)	
Dissipation Factor (Loss tangent)				
@RT @ 1MHz	.0016	.0035	.0017	.0061
@150°C @ 1MHz	.0017	.0055	.0094	.0062
@RT @ 8.8GHz	.0011	.0005	.0039	.0006
Loss Factor				
@RT @ 1MHz	.0067	.0140	.0076	.0230
@150°C @ 1MHz	.0077	.0230	.0440	.0250
@RT @ 8.8GHz	.0042	.0020	.0150	.0260
Surface Resistivity (ohms/s) @ RT	8.5 x 10 ¹⁶		4.2 x 10 ¹⁶	
@ 150°C	1.4 x 10 ¹⁵		1.5 x 10 ¹⁵	

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