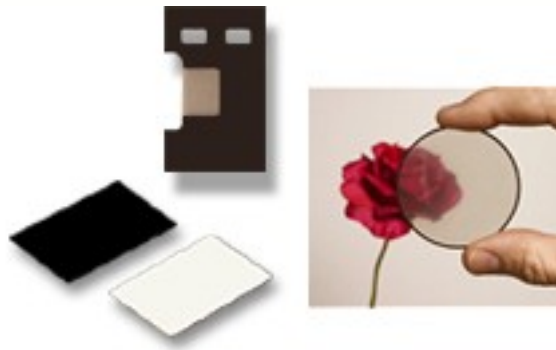
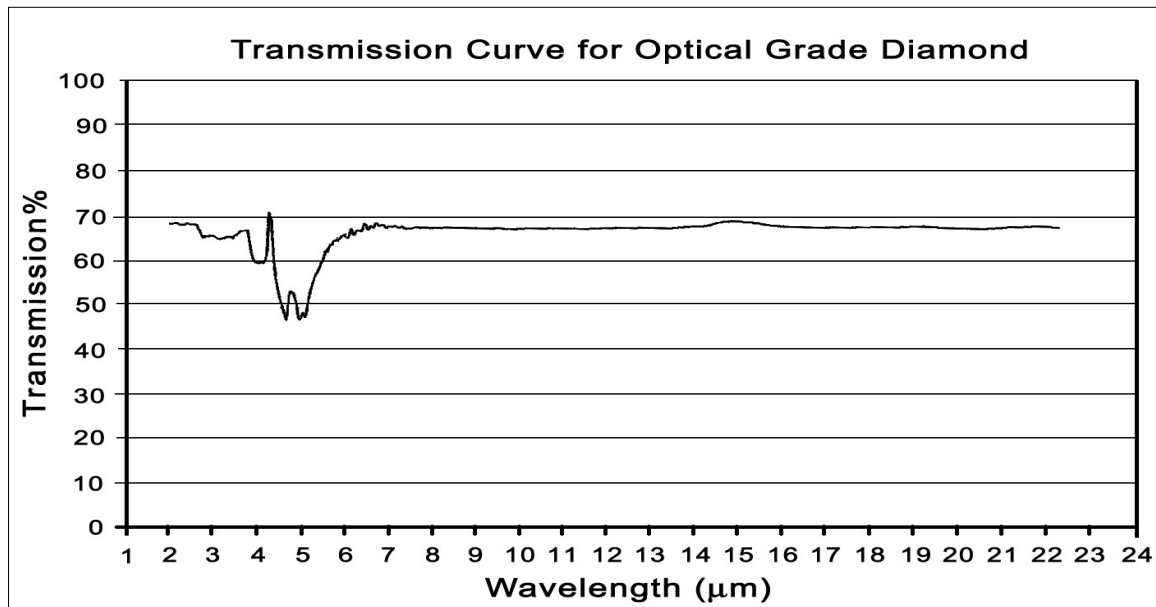


### CVD Diamond Properties



Optical Properties	Value
Refractive Index	2.417
Optical Dispersion	0.044
Optical Absorption	< 0.04 cm <sup>-1</sup> (10.6 μm)



Mechanical Properties	Value
Strength, Compression	>110GPa
Strength, Fracture	1000MPa
Strength, Tensile	0.5-1.4GPa
Atom Density	1.77x10 <sup>23</sup> /cm <sup>3</sup>
Young's Modulus	900-1100GPa
Poisson's Ratio	0.069
Hardness (Knoop)	5,700kg/mm <sup>2</sup>
Density	3.515gm/cm <sup>3</sup>
Coeff. of Friction	0.035-0.30

Electronic Properties	Value
Sound Velocity (20°C)	17,500 m/s
Debye Temperature (0-800°C)	1860°K
Electron Mobility (25°C)	480cm <sup>2</sup> /Vs
Dielectric Constant 45MHz-20GHz	5.6
Hole Mobility	1,600 cm <sup>2</sup> /Vs
Band gap	5.45 eV
Loss Tangent	<i>tan d</i> = 2x10 <sup>-5</sup> at 100 GHz

Our extensive knowledge of diamond and years of practical application have allowed us to tailor fit our materials to your particular needs.

Electrical Properties	Value
Electrical Resistivity	$>10^{14}$ ohm-cm
Dielectric Strength	$10^7$ V/cm

Thermal Properties	Value	
Heat Capacity (25 °C)	0.510 J/g-K	
Thermal Conductivity (25 °C)	ASTM Flash Method	
	High Grade	1800 W/mK
	Medium Grade	1100 W/mK
	Low Grade	700 W/mK
Graphitization in inert atmosphere (or vacuum) @ 1500 °C		
Oxidation @ 600 °C		

