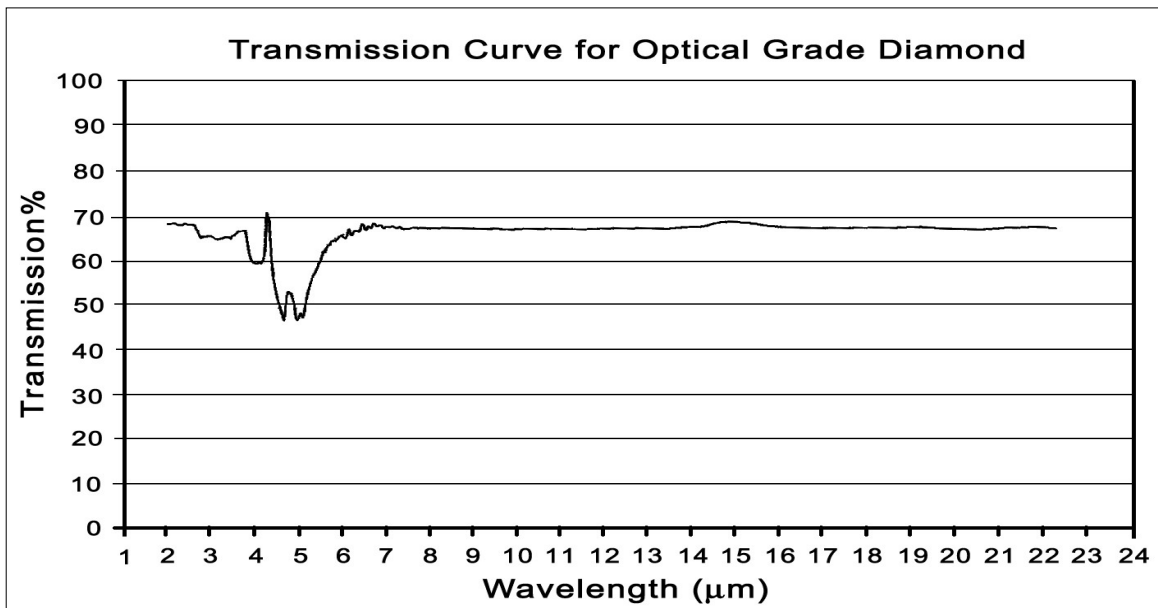


CVD Diamond Properties



Optical Properties	Value
Refractive Index	2.417
Optical Dispersion	0.044
Optical Absorption	$< 0.04 \text{ cm}^{-1}$ (10.6 μm)



Mechanical Properties	Value
Strength, Compression	$>110\text{GPa}$
Strength, Fracture	1000MPa
Strength, Tensile	0.5-1.4GPa
Atom Density	$1.77 \times 10^{23} / \text{cm}^3$
Young's Modulus	900-1100GPa
Poisson's Ratio	0.069
Hardness (Knoop)	5,700kg/mm ²
Density	3.515gm/cm ³
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 ² /Vs
Dielectric Constant 45MHz-20GHz	5.6
Hole Mobility	1,600 cm ² /Vs
Band gap	5.45 eV
Loss Tangent	$\tan d = 2 \times 10^{-5}$ at 100 GHz

CVD Diamond Properties

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	

