



THERMAL GRADE POLYCRYSTALLINE CVD DIAMOND

Polycrystalline diamond, grown via chemical vapor deposition, available in film coatings and bulk form. Polycrystalline diamond offerings are custom processed for advanced applications.

- > High-performing CVD substrates for thermal management
- > Available at scale to exact customer sizing and polish requirements
- > Bulk Material or Epitaxial Film / Coating per customer specifications

MATERIAL SPECIFICATIONS	
Thermal Conductivity	1500-2200 W/(m·K) <i>(to customer specification)</i>
Hardness	>8 MPa·m
Crystal Structure	Cubic
Lattice Constant	3.567 Å
Density	3.51 ± 0.01 g/cm ³
¹³ C Fraction	1.1%
Grain Size	>100µm typical
Dimensions	Square, Round
	Up to 75mm <i>(length, width)</i>
	0.300-1mm <i>(thickness) (other values available upon request)</i>
Roughness, Ra	Laser Cut, Optical Polish (<20nm Ra), Fine Polish (<10nm Ra)
Appearance	Yellow Tint to Black
Thermal Expansion Coefficient	~1×10 ⁻⁶ K ⁻¹
Specific Heat (25° C)	~0.51-0.54 J/g·K
Nitrogen Levels	<5ppm N2

All diamond substrates are grown at the WD Advanced Materials facility in the United States. For custom requests and to discuss capabilities outside of the specifications noted here, please reach out to your account management team at the Hi-Rel Group.