

# BLACK DIAMOND BD6™ Infrared Chalcogenide Glass



## Infrared Chalcogenide Glass (As<sub>40</sub>Se<sub>60</sub>)

- Manufactured in Orlando, Florida
- Full IR spectrum transmission
- Lower density/Lighter weight than Germanium
- Provides optical athermalization
- Not susceptible to thermal runaway
- Space qualified
- Material available as a 120mm diameter boule or in select thicknesses



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## PROPERTIES

	-3dB Transmission window		SWIR (1-3 $\mu$ m)			MWIR (3-5 $\mu$ m)			LWIR (8-12 $\mu$ m)			Physical Properties			
Glass	$\lambda$ short ( $\mu$ m)	$\lambda$ long ( $\mu$ m)	Index	dn/dT (ppm/ $^{\circ}$ C)	V(1-3)	Index	dn/dT (ppm/ $^{\circ}$ C)	V(3-5)	Index	dn/dT (ppm/ $^{\circ}$ C)	V(8-12)	Density (g/cm <sup>3</sup> )	T <sub>g</sub> ( $^{\circ}$ C)	CTE (ppm/ $^{\circ}$ C)	Thermal power (1/ $^{\circ}$ C)
BD6	0.83	17.5	2.81	pending	14.10	2.79	pending	169.20	2.781	30.50	159.40	4.63	185	22.50	-5.38

Wavelength (um)	Refractive index @ 20°C (+/- 0.001)
2	2.820
4	2.794
6	2.788
8	2.783
10	2.778
12	2.772
14	2.764

LightPath's Black Diamond BD6™ Chalcogenide glass is produced in standard size boules of 120mm diameter, however, we can use our proprietary molding technology to provide larger diameters as needed. Our Black Diamond BD6™ materials are designed specifically to have the same refractive index, whether fabricated by diamond turning into lenses, conventionally polished into lenses, or molded into its final form. Today, we produce our glass in quantities of up to 10 metric tons annually with near term plans to further expand our production capacity. In November of 2021, LightPath received from the US Naval Research Laboratories (NRL) an exclusive usage license for commercializing additional Chalcogenide glasses developed by NRL's scientists. LightPath is currently in the process of transitioning these materials into production. If interested in learning more, please contact us at [sales@lightpath.com](mailto:sales@lightpath.com).

