

Naked Optics supplies polycrystalline ZnS from VITRON. Polycrystalline ZnS is produced by a Chemical Vapor Deposition process (CVD) at our facility in Jena, Germany. Two grades of ZnS are available:

**FLIR grade ZnS** offers excellent transmission in the 8 – 12µm spectral range. Typical applications are for windows, lenses (spherical and aspheric) in IR optical systems. It is available in large sizes and is moderately priced.

**CLEAR grade ZnS** undergoes a precision heat treatment process to eliminate microscopic anomalies which can be present in standard grades of CVD material. The transformation results in an optically clear, premium grade of ZnS that is suitable for use in the visible to IR spectral range from 0.45 – 12µm .

Both grades are available as cut discs or generated lens blanks. Contact Naked Optics for details.

ZnS Physical Properties	FLIR	CLEAR
Density (g/cm <sup>3</sup> )	4.08	4.09
Thermal Expansion (x10 <sup>-6</sup> K <sup>-1</sup> )	6.8	6.5
Specific Heat (J/gK)	0.469	0.527
Thermal Conductivity (W/mK)	16.7	27.2
Knoop Hardness (kg/mm <sup>2</sup> )	210 to 240	150 to 165
Rupture Modulus (MPa)	103	69
Young's Modulus (GPa)	74	88
Poisson's Ratio	0.27	0.27

# Naked Optics

## Optical Specifications

	FLIR	CLEAR
Bulk Absorption Coef (10.6µm)	<0.24 cm <sup>-1</sup>	<0.20 cm <sup>-1</sup>
Index Inhomogeneity (x10 <sup>-6</sup> )	<100 (10.6 µm)	<20 (0.66 µm)
dn/dT (x10 <sup>-6</sup> °C <sup>-1</sup> )	41 (10.6 µm)	54 (0.66 µm)

λ (µm)	Index	Transmission % (6 mm)	
		FLIR	CLEAR
0.46	2.516	0	65
0.50	2.419	5	67
0.66	2.342	8	69
0.80	2.313	12	71
1.00	2.292	18	72
3.00	2.257	46	72
4.00	2.252	52	73
5.00	2.246	63	73
6.00	2.239	50	72
7.00	2.232	68	74
8.00	2.223	73	74
9.00	2.212	74	75
10.00	2.200	74	75
11.00	2.186	58	58
12.00	2.170	61	61

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