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ZnSe Lenses

Zinc Selenide (ZnSe) lenses is an excellent choice for any IR applications due to its broad wavelength range (3 μm to 16 μm). Zinc selenide is a chemically vapor deposited (or CVD) material commonly used in thermal imaging, CO₂ lasers, military and medical systems. Zinc selenide (ZnSe) has a high index of refraction which normally requires an anti-reflection coating to achieve high transmission. Zinc selenide is relatively soft with low scratch resistance thus not recommended for use in harsh environment. Extra caution is required during cleaning, handling, and mounting.



Features:

- ◆ High transmission from 3 μm to 12 μm
- ◆ Low dispersion and low absorption coefficient
- ◆ Ideal for thermally demanding environments
- ◆ Applications: thermal imaging, CO₂ lasers, military and medical applications

Specifications:

Specifications	
Materials	CVD ZnSe crystals
Diameter Range	~200mm
Diameter Tolerance	+0.0/-0.2mm
Thickness Tolerance	+/-0.2mm
Surface Quality	60/40 S/D
Frings (N)	3
Irregularity (delta N)	1
Centration	3'
Chamfer	0.1-0.3mmx45 degree
Coatings	AR/AR@7-14micro BBAR/BBAR@3-12 micro

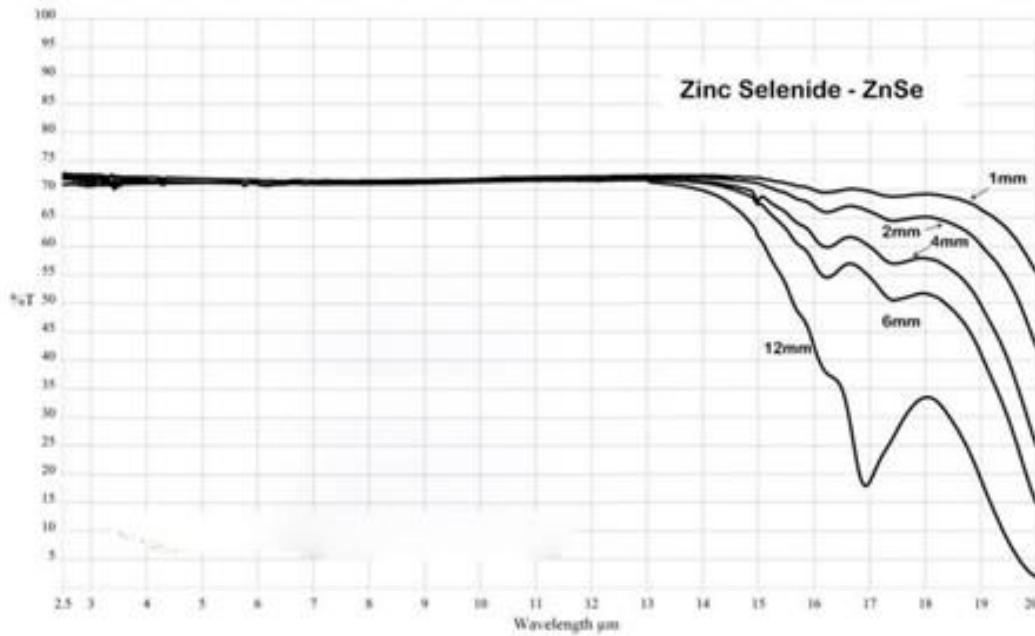
Note: the domes of other specifications is available upon customer's request.

Basic Properties:

Physical and Optical Properties	
Transmission Range	0.6 to 21.0 μ m
Refractive Index	2.4028 at 10.6 μ m
Reflection Loss	29.1% at 10.6 μ m (2 surfaces)
Absorption Coefficient	0.0005 cm ⁻¹ at 10.6 μ m
Reststrahlen Peak	45.7 μ m
dn/dT	+61 x 10 ⁻⁶ /°C at 10.6 μ m at 298K
dn/d μ = 0	5.5 μ m
Density	5.27 g/cc
Melting Point	1525°C (see notes below)
Thermal Conductivity	18 W m ⁻¹ K ⁻¹ at 298K
Thermal Expansion	7.1 x 10 ⁻⁶ /°C at 273K
Hardness	Knoop 120 with 50g indenter
Specific Heat Capacity	339 J Kg ⁻¹ K ⁻¹
Dielectric Constant	n/a
Youngs Modulus (E)	67.2 GPa
Shear Modulus (G)	n/a
Bulk Modulus (K)	40 GPa
Elastic Coefficients	Not Available
Apparent Elastic Limit	55.1 MPa (8000 psi)
Poisson Ratio	0.28
Solubility	0.001g/100g water

Molecular Weight	144.33
Class/Structure	HIP polycrystalline cubic, ZnS, F43m

1. Transmission curve of the ZnSe windows no coating



2. Transmission curve of ZnSe windows with BBAR/BBAR coating

