

Chalcogenide Glass (Ge-As-Se / As-Se Systems)

Moldable IR glass with one-tenth the dn/dT of Germanium.

PHYSICAL PROPERTIES	
Structure	Amorphous glass (composition-dependent)
Density	~4.4 – 4.7 g/cm ³
Bulk resistivity	High-resistivity insulator
OPTICAL PROPERTIES	
Useful transmission range	1 – 14 μm (composition-dependent)
Refractive index	2.5 – 2.8 @ 10 μm
dn/dT	+30 – 60 × 10 ⁻⁶ /K
THERMAL PROPERTIES	
Thermal conductivity	~0.25 W/m·K
Specific heat	~0.36 J/g·K
Thermal expansion (CTE)	~20 × 10 ⁻⁶ /K
MECHANICAL PROPERTIES	
Young's modulus	~18 – 22 GPa
Knoop hardness	~100 – 170 kgf/mm ²
Poisson's ratio	~0.27

Typical Applications

Passively athermalized LWIR lens assemblies; volume thermal-camera optics; Ge-replacement elements reducing thermal defocus.

Fabrication & Specification Notes

All values composition-dependent (e.g. Ge₃₃As₁₂Se₅₅, As₄₀Se₆₀) — confirm the exact glass type at RFQ.

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