

# SCHOTT, your reliable solutions provider in the IR industry

Infrared Chalcogenide Glasses IRG 22, IRG 24, IRG 25, IRG 26 and IRG 27

## Product Information

The IR glasses have excellent transmission in the SWIR, MWIR, & LWIR. Physical properties such as low  $dn/dT$  and low dispersion enable optical engineers to design color corrected optical systems without thermal defocusing. The IRG family of Chalcogenide glasses is optimized for pairing within the family of IR glasses and with other IR materials to support cost effective and high performance optical designs. These glasses encompass the common IR transmission bands: 3–5  $\mu\text{m}$  and 8–12  $\mu\text{m}$ , but can transmit as low as 0.7  $\mu\text{m}$ . Furthermore, the IR series of glasses can be processed by conventional grinding and polishing, single point diamond turning, or molding to support low to high volume component level fabrication.



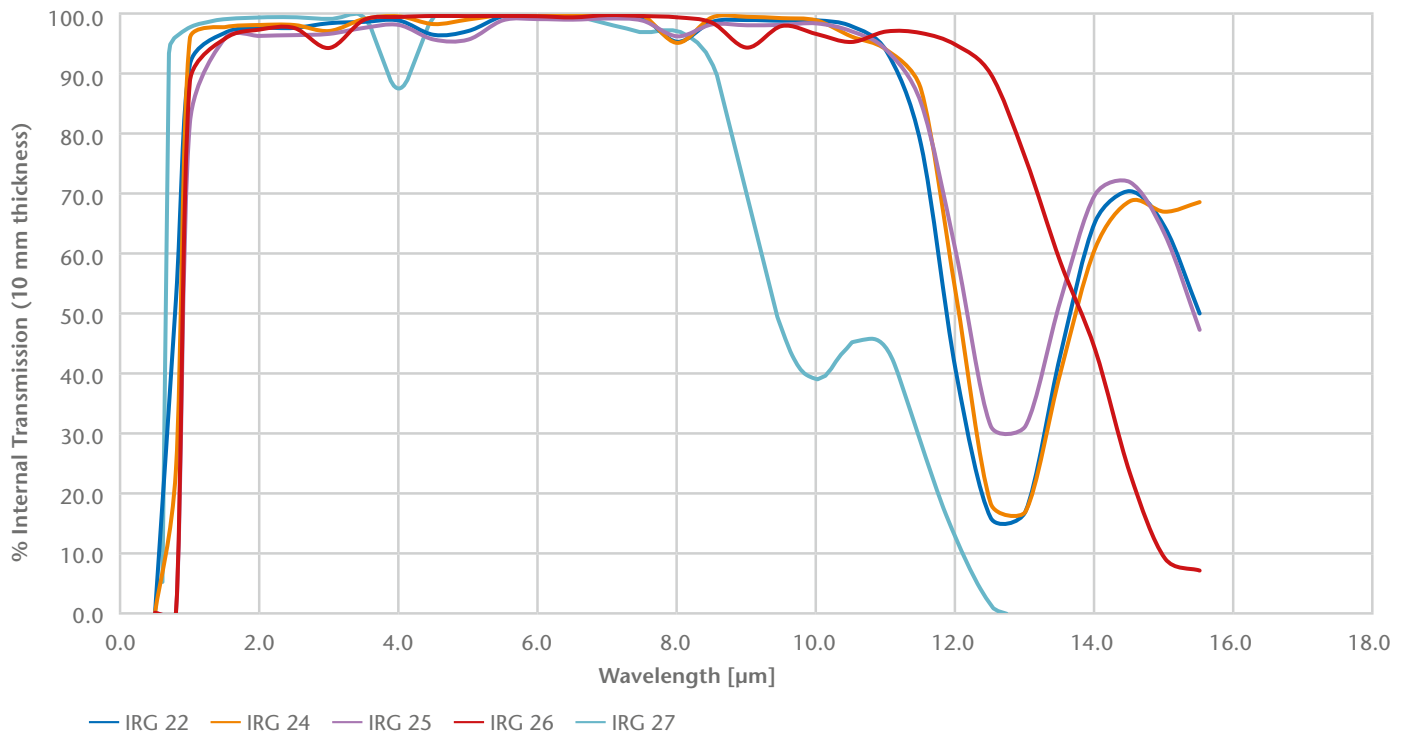
## Typical Forms of Supply

SCHOTT as your reliable solution provider in the IR industry is offering you the new chalcogenide material IRG 22 to IRG 27. Typical forms of supply are upon customer request. Maximum sizes up to  $\varnothing$  95 mm and 150 mm length.

For sample parts we would like to offer you the following sample sizes: IRG 22 to IRG 27 – polished blanks:

- Diameter: 10 to 95 mm
- Thickness: 5 to 30 mm

## Internal Transmission of Infrared Glass IRG 22, IRG 24, IRG 25, IRG 26, IRG 27 with Thickness 10.0 mm (Typical Values)



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Material Properties IRG 22	
Composition	$\text{Ge}_{33}\text{As}_{12}\text{Se}_{55}$
Density	4.41 g/cm <sup>3</sup>
Thermal Expansion (20–100 °C)	$12.5 \cdot 10^{-6}/\text{K}$
Transition Temperature	368 °C
Thermal Change dn/dT*	$94.8 \cdot 10^{-6}/\text{K}$ (1 μm)
	$67.7 \cdot 10^{-6}/\text{K}$ (5 μm)
	$67.1 \cdot 10^{-6}/\text{K}$ (10 μm)
Refractive Index	2.5971 (1 μm)
	2.5104 (5 μm)
	2.4968 (10 μm)

Material Properties IRG 24	
Composition	$\text{Ge}_{10}\text{As}_{40}\text{Se}_{50}$
Density	4.47 g/cm <sup>3</sup>
Thermal Expansion (20–100 °C)	$20.0 \cdot 10^{-6}/\text{K}$
Transition Temperature	225 °C
Thermal Change dn/dT*	$46.0 \cdot 10^{-6}/\text{K}$ (1 μm)
	$21.1 \cdot 10^{-6}/\text{K}$ (5 μm)
	$20.3 \cdot 10^{-6}/\text{K}$ (10 μm)
Refractive Index	2.7249 (1 μm)
	2.6192 (5 μm)
	2.6090 (10 μm)

Material Properties IRG 25	
Composition	$\text{Ge}_{28}\text{Sb}_{12}\text{Se}_{60}$
Density	4.66 g/cm <sup>3</sup>
Thermal Expansion (20–100 °C)	$14.0 \cdot 10^{-6}/\text{K}$
Transition Temperature	285 °C
Thermal Change dn/dT*	$79.2 \cdot 10^{-6}/\text{K}$ (1 μm)
	$62.0 \cdot 10^{-6}/\text{K}$ (5 μm)
	$61.1 \cdot 10^{-6}/\text{K}$ (10 μm)
Refractive Index	2.7284 (1 μm)
	2.6183 (5 μm)
	2.6030 (10 μm)

Material Properties IRG 26	
Composition	$\text{As}_{40}\text{Se}_{60}$
Density	4.63 g/cm <sup>3</sup>
Thermal Expansion (20–100 °C)	$21.4 \cdot 10^{-6}/\text{K}$
Transition Temperature	185 °C
Thermal Change dn/dT*	$76.2 \cdot 10^{-6}/\text{K}$ (1 μm)
	$33.4 \cdot 10^{-6}/\text{K}$ (5 μm)
	$32.2 \cdot 10^{-6}/\text{K}$ (10.6 μm)
Refractive Index	2.9316 (1 μm)
	2.7909 (5 μm)
	2.7781 (10 μm)

Material Properties IRG 27	
Composition	$\text{As}_2\text{S}_3$
Density	3.20 g/cm <sup>3</sup>
Thermal Expansion (20–100 °C)	$22.5 \cdot 10^{-6}/\text{K}$
Transition Temperature	197 °C
Thermal Change dn/dT*	$15.6 \cdot 10^{-6}/\text{K}$ (1 μm)
	$-3.2 \cdot 10^{-6}/\text{K}$ (5 μm)
	$-3.7 \cdot 10^{-6}/\text{K}$ (10.6 μm)
Refractive Index	2.4841 (1 μm)
	2.4129 (5 μm)
	2.3842 (10 μm)

\*For more information and questions please contact us

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