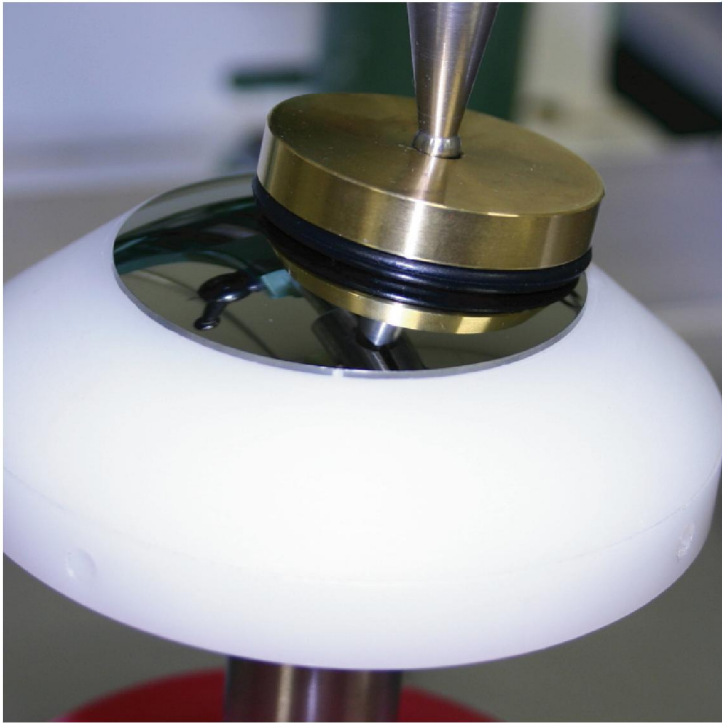


# Refractive IR Crystal Component Fabrication



Grinding and Polishing Capabilities  
Corning Specialty Materials  
Aerospace and Defense

For over a decade, the Corning Specialty Materials - Diamond Turning Division has been recognized as a world leader in diamond turned reflective and refractive optics for Aerospace and Defense applications. Now we have extended our refractive capabilities beyond turned and molded optics to include grinding and polishing processes.

Our commitment to become the premier supplier of optical solutions for Aerospace and Defense has been extended to include the production and qualification of IR crystal components and assemblies. A dedicated IR crystal fabrication work cell is now in operation. Conventional polishing lines and precision CNC grinding and polishing equipment have been acquired to produce high-precision spherical optics. For more demanding surface profiles such

as aspheres, we employ the latest generation diamond turning machines.

The ability to leverage Corning's long heritage in optical design, manufacturing, and coating of complex refractive optical systems has been a tremendous asset in quickly bringing this new grind and polish area on line and ready for production.

Manufacturing IR crystal optics is more than just grinding and polishing exotic materials. As with our reflective systems, our refractive optics are backed by extensive optical and mechanical design. Rigorous manufacturing process characterization enables us to produce high-quality components on time that meet or exceed specification. To ensure performance, every component is tested using state of the art interferometers and optical profilers, following documented testing processes and procedures.

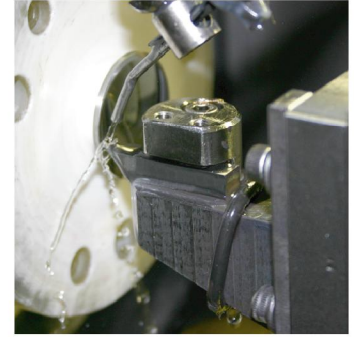
Optical coatings are critical to the performance of an optic. Our coatings are designed to ensure optimum performance and durability for its intended use. Each coating is tested against the most rigorous conditions to ensure that they meet the required military specifications. AR coating data is included on the reverse side of this document.

**CORNING**

# Materials and Coatings

## IR Materials

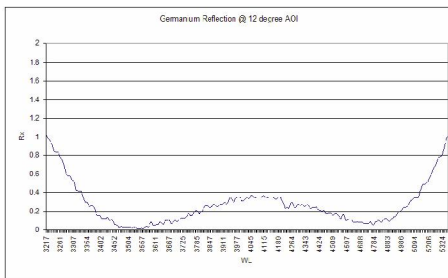
- Amtir (GeAsSe)
- Barium Fluoride (BaF<sub>2</sub>)
- Gallium Arsenide (GaAs)
- Germanium (Ge)
- Silicon (Si)
- Zinc Selenide (ZnSe)
- Zinc Sulfide (ZnS)



## Anti-Reflection Coatings

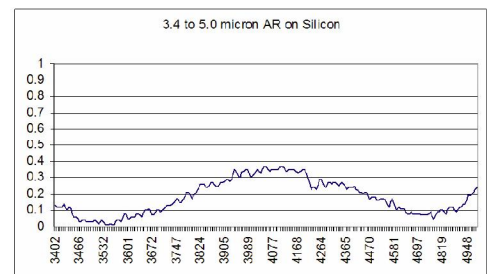
### Infrared AR Coating on Germanium

- ≥ 98% Min. Abs. Tx from 3.4 μm to 5.0 μm @ 12° AOI (for 2-sided coating)
- ≤ 0.5% Abs. Rx from 3.4 μm to 5.0 μm @ 12° AOI (for each surface)



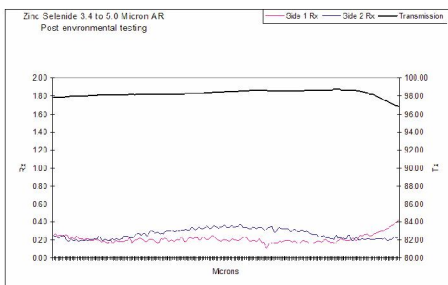
### Infrared AR Coating on Silicon

- ≥ 98% Min. Abs. Tx from 3.4 μm to 5.0 μm @ 12° AOI (for 2-sided coating)
- ≤ 0.5% Abs. Rx from 3.4 μm to 5.0 μm @ 12° AOI (for each surface)



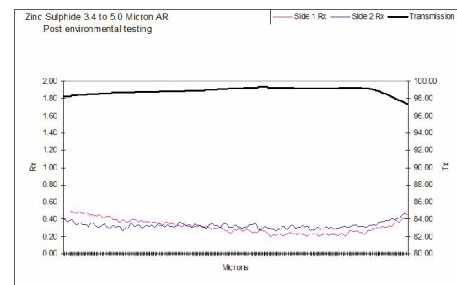
### Infrared AR Coating on Zinc Selenide

- ≥ 98% Min. Avg. Tx from 3.4 μm to 5.0 μm @ 12° AOI (for 2-sided coating)
- ≤ 0.5% Avg. Rx from 3.4 μm to 5.0 μm @ 12° AOI (for each surface)



### Infrared AR Coating on Zinc Sulfide

- ≥ 98% Min. Avg. Tx from 3.4 μm to 5.0 μm @ 12° AOI (for 2-sided coating)
- ≤ 0.5% Avg. Rx from 3.4 μm to 5.0 μm @ 12° AOI (for each surface)



For a complete list of coatings and materials, or to discuss a custom coating design please contact us at:

Corning Specialty Materials  
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