

# II-VI

## MATERIALS THAT MATTER



# Diamond OverCoat DOC/AR Anti-Reflection

## ZnSe

### DOC Qualities

The DOC is a hybrid AR coating that provides higher optical performance than traditional Ge DLC coatings with improved durability over standard AR designs.

This coating is especially useful for optics exposed to harsh environments. Applications that require frequent cleaning include: cutting, drilling, scribing and marking, where spatter and debris may adhere to the optical surface.

The DOC/AR coating is typically applied to one side of the optic, but can be applied to both. This low absorbing coating is also ideal for applications that are sensitive to thermal stability.

#### Cleanable

- Specially designed for copper spatter resistance
- Scratch resistant
- Easy removal of dust, dirt, and other debris that adheres to the optical surface

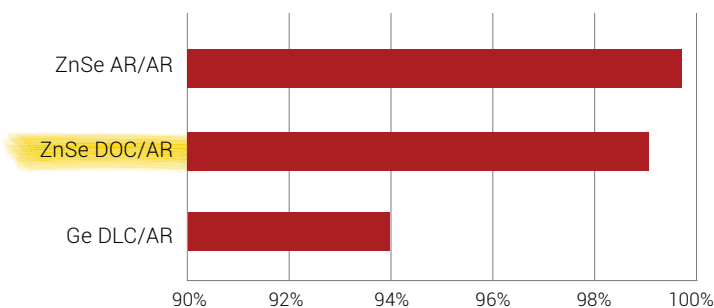
#### High Transmission

- Improved performance over traditional Diamond-Like Carbon (DLC) Coatings
- Low absorption for good thermal stability

#### Versatile

- Available on a variety of substrates for transmissive and reflective applications: ZnSe, Copper, Diamond, SiC, Silicon, others
- Non-thorium versions available
- Single and broadband wavelengths available
- Coating can be applied to various geometries

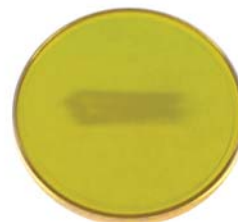
### Transmission\*



\* Typical values

### Durability

Standard AR@9.3µm



500 strokes\*

AR-DOC@9.3µm



3,500 strokes\*

\* II-VI Internal Test

Felt pad saturated with 1.0µm Al<sub>2</sub>O<sub>3</sub> 65 kPa (0.66 Kg/cm<sup>2</sup>) 2.6 cm/sec

# Diamond OverCoat DOC/AR ZnSe

Anti-Reflection



## Properties

### Material – ZnSe

Specifications	Standard
Dimensional Tolerance	Diameter: +0.000/-0.005"
Edge Thickness Variation (ETV)	< 3 arc minutes
Clear Aperture	90% of diameter
Surface Figure (power/irregularity) at 0.63um	1.0 fringe/0.5 fringe
Scratch-Dig	20-10
AR Coating Reflectivity per Surface at 10.6 um	<0.2%
Diameter	10mm – 300mm

### Coating DOC/AR

Substrate	ZnSe
Spectral region; Available	9.2-10.7 μm
Product Specification at 10.6 um	Transmission > 98% Reflection < 0.3%
Spectral Performance at 9.3xμm (DOC/AR)	Tav > 98.5% (through both surfaces) Rav < 0.2% (per surface)

## Environmental Performance

This coating is designed to meet durability requirements of the following MIL Specification:

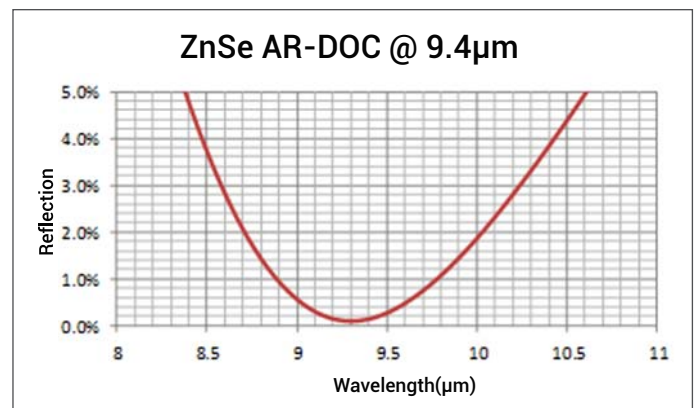
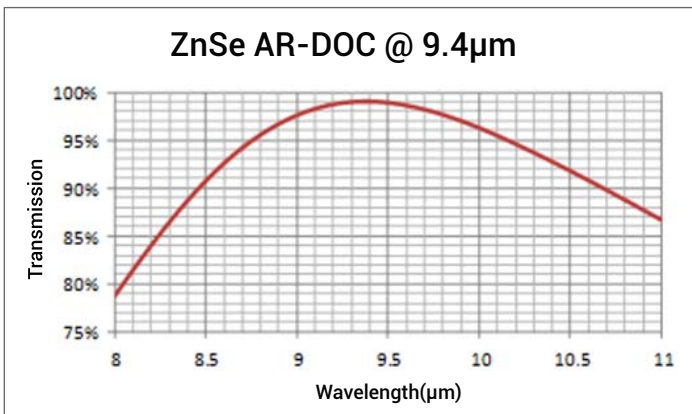
- MIL-C-48497
- 3.4.1.1 Adhesion
- 3.4.1.2 Humidity
- 3.4.1.3 Moderate Abrasion
- 3.4.2.1 Temperature
- 3.4.2.2 Solubility and Cleanability

## Spectral Performance

Spectral performance at 9.3xμm(DOC/AR)

- Reflection <0.2% per surface
- Transmission >98.5%
- Absorption <0.9%

This coating can be designed for similar performance at other CO<sub>2</sub> wavelengths.



## World Sales Offices

For more information, Please contact a II-VI sales representative for your region, or visit [www.iiviiinfrared.com](http://www.iiviiinfrared.com) for our most complete and up-to-date contact information.