



ISP OPTICS Corporation

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High Durability (HDAR) / High Efficient Antireflection (HEAR)

ISP Part Number: HD-AR-ZnSe-8-12

Description: High durability coating (HDAR) is used for exterior surface of optics for wear resistance at normal environment. Its wear resistance is superior to HEAR coating.

Substrate Material: ZnSe

Polarization: Averaged polarization (P-pol+S-pol) /2

Spectral range: 8-12µm (LWIR)

Averaged Reflectance: Averaged Reflectance in entire spectral range (Ravg)

Maximum Reflectance or transmission: Maximum Peak in entire spectral range (Rmax. or Tmax.)

Minimum Reflectance or transmission: Minimum Peak in entire spectral range (Rmin. or Tmin.)

Measurement: Transmission on 25.4mmdia. x 1mm thick window and reflectance on 6-8degrees 25.4mm dia. wedged witness sample

Coating Material: Non-radioactive material to be used.

Report: Certificate of Compliance, spectral measurement (reflectance and transmission) and durability test report

1. HDAR 8-12µm on external surface

Item	Condition	Requirements
1.1 Reflectance	0°-12° AOI	Ravg</=2.0% per surface
1.2 Transmission	0°-12° AOI	Tavg>/=96% thru HDAR/HEAR
1.3 Humidity	24hrs, 95-100%RH, 120+/-4°F	MIL-F-48616 / MIL-C-48497C
1.4 Temperature	-80°F to 160°F for 2 hrs at each temperature	MIL-F-48616 / MIL-C-48497C
1.5 Solubility and Cleanability	Immersion test in Trichloroethylene and Ethyl alcohol for 10 min	MIL-F-48616 / MIL-C-48497C
1.6 Adhesion	Adhesion (Cellophane tape test with quick removal)	MIL-F-48616 / MIL-C-48497C
1.7 Abrasion	Severe abrasion (20 cycles under 2 lb force)	MIL-F-48616 / MIL-C-48497C
1.8 Salt fog	24hrs+	MIL-STD-810C, Para. 509.1

2. HEAR 8-12µm on internal surface

Item	Condition	Requirements
2.1 Reflectance	0°-12° AOI	Ravg</=0.5% per surface
2.2 Humidity	24hrs, 95-100%RH, 120+/-4°F	MIL-F-48616 / MIL-C-48497C
2.3 Temperature	-80°F to 160°F for 2 hrs at each temperature	MIL-F-48616 / MIL-C-48497C
2.4 Solubility and Cleanability	Immersion test in Trichloroethylene and Ethyl alcohol for 10 min	MIL-F-48616 / MIL-C-48497C
2.5 Adhesion	Adhesion (Cellophane tape test with quick removal)	MIL-F-48616 / MIL-C-48497C
2.6 Abrasion	Moderate abrasion (25 cycles under 1 lb force)	MIL-F-48616 / MIL-C-48497C
2.7 Salt fog	24hrs+	MIL-STD-810C, Para. 509.1



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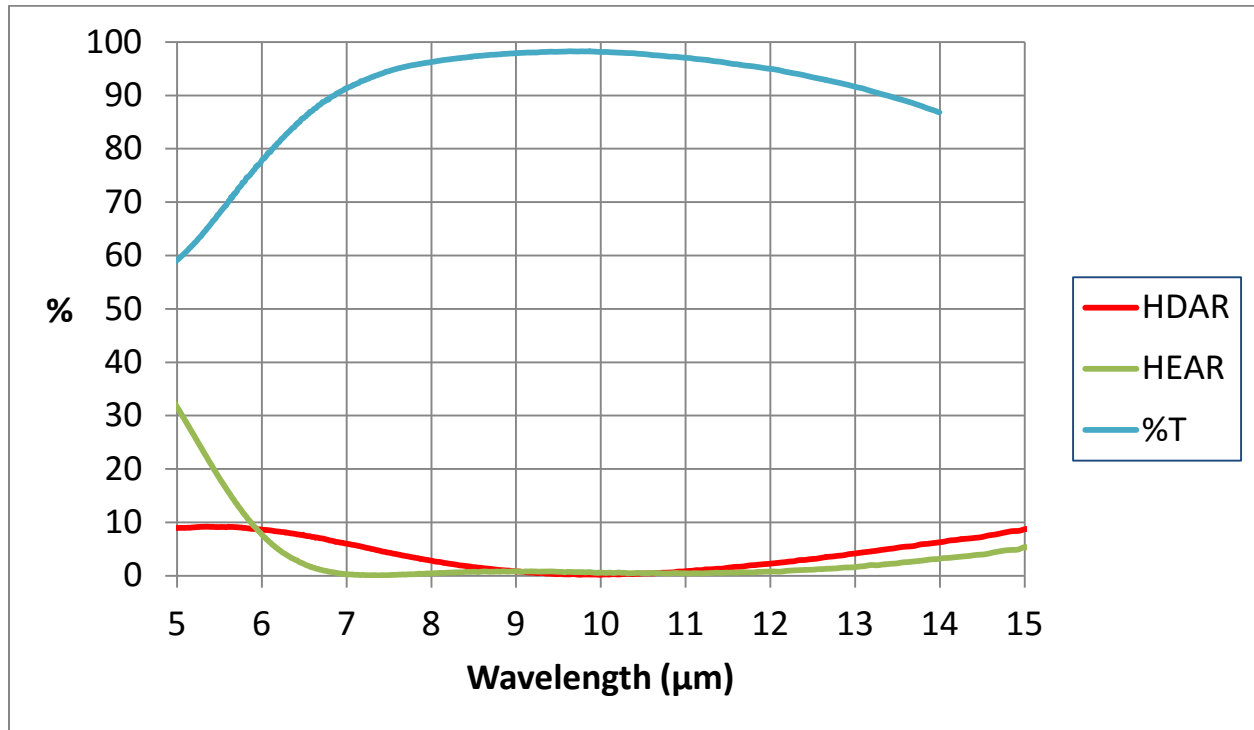


Fig.1 Transmission/Reflection Curve for HDAR/HEAR 8-12
Substrate: ZnSe