

# High Durability Antireflection Coating (HDAR)

Part Number: HD-GE-3-5

**Description:** Xtreme Hi-Dur BBAR coatings withstand humidity, salt fog, and severe abrasion and are an alternative to DLC in situations where passing the windshield test is not required.

**Substrate Material:** Ge

**Polarization:** Average polarization (S+P)/2

**Spectral Range:** 3-5 $\mu$ m (MWIR)

**Averaged Reflectance:**

Averaged Reflectance in entire spectral range (Ravg)

**Maximum Reflectance or Transmission:**

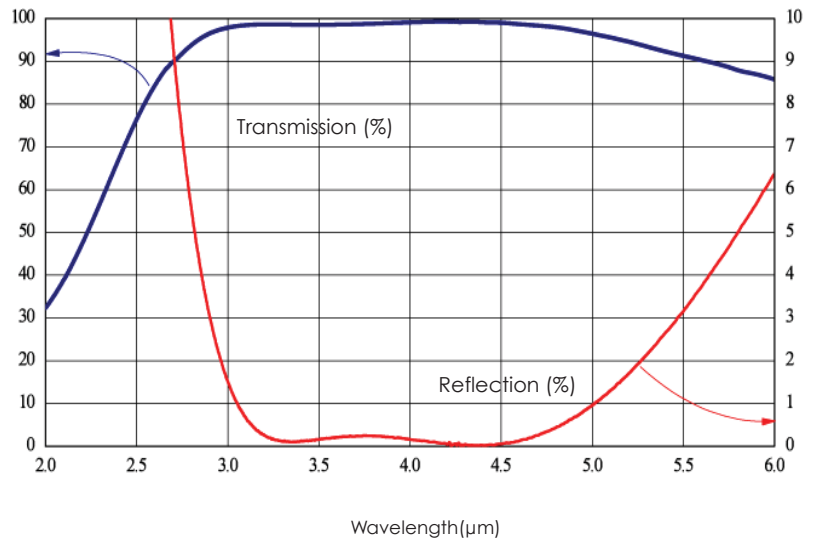
Maximum Peak in entire spectral range (Rmax. or Tmax)

**Minimum Reflectance or Transmission:**

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

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

**Coating Material:** Non-radioactive material to be used.



## 1. HDAR 3-5 $\mu$ m on external surface

ITEM	CONDITION	REQUIREMENT
1.1 Reflectance	0-15° AOI	Ravg $\leq$ 0.5% and Rmax $\leq$ 1.5% per surface
1.2 Transmission	0° AOI	Tavg $\geq$ 98% and Tmin $\geq$ 94% on HDAR/HEAR
1.3 Humidity	24 hrs, 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 Acetone and Alcohol for 1 hour instead of using Trichloroethylene	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	72 hrs +	MIL-C-675

## 2. HEAR 3-5 $\mu$ m on internal surface

ITEM	CONDITION	REQUIREMENT
2.1 Reflectance	0-15° AOI	Ravg $\leq$ 0.5% and Rmax $\leq$ 1.5% per surface
2.2 Humidity	24 hrs, 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 Acetone and Alcohol for 1 hour instead of using Trichloroethylene	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

For Reference Only

ISP Optics Corp:  
2603 Challenger Tech Court, Suite 100  
Orlando, FL 32826  
Tel: +800-909-4207  
www.ispoptics.com

ISP Optics Latvia:  
24a Ganību Dambis, korp 13  
Rīga, LV-1005, Latvia  
T: +371 67 323 779  
sales@ispoptics.eu



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