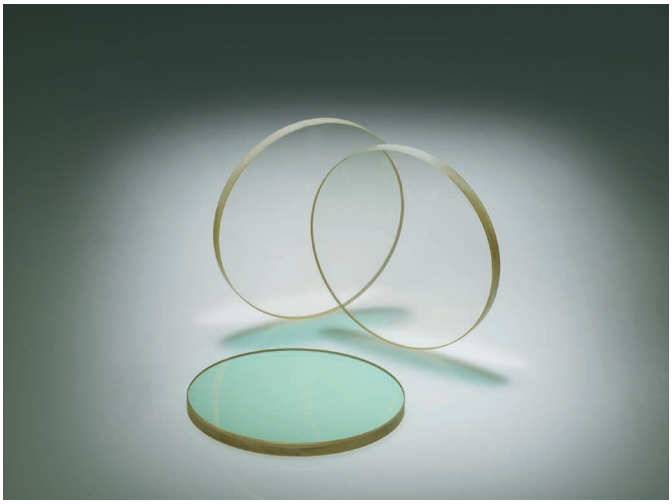
SCHOTT ZnS – Multi Band Scratch Resistant AR Coating

Product information

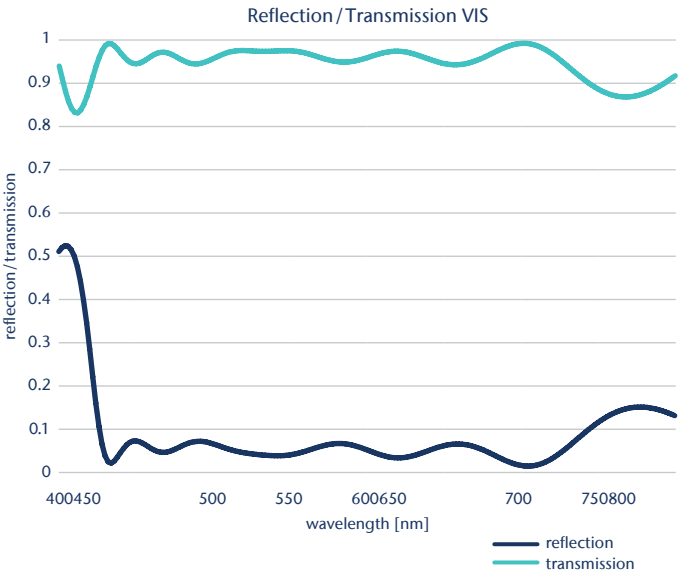
Scratch resistance is a real issue when it comes to protect your optical devices from harsh environments. In order to match today's requirements with respect to scratch resistance and spectral performance in the VIS and IR range, a real advantage is necessary.

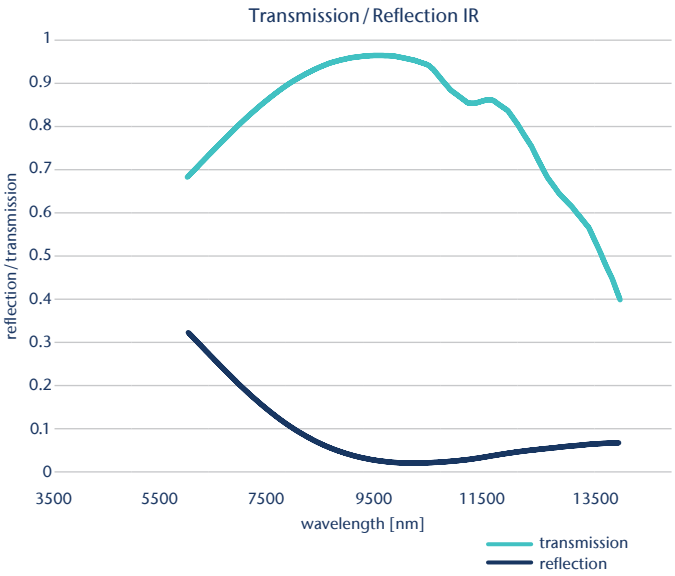
SCHOTT combines the knowledge of a high-end polishing processes with a unique coating technology to generate solutions for special applications. This coating was specially designed to give low reflectance, low absorption, high trans-mittance in the visible 0.45 µm to 0.80 µm and IR 8–12 µm and outstanding scratch resistant performance. The coating contains no radioactive materials.



Application

- Surveillance and reconnaissance platforms (VIS and IR)
- Optical targeting systems
- Fire control systems
- Periscopes





Spectral performance

Transmission values are for a 3 mm piece thick ZnS multi-spectral substrate which has been coated with scratch resistant AR coating outside (facing the environment) and standard non-scratch resistant coating on the inside (facing the optical system).

Transmission > 92 % (average) from 450 – 750 nm
Transmission > 85 % (average) from 8000 – 11500 nm

This coating can be adapted to meet the spectral requirements of specific customer requests.

Typical Forms of supply

- Round: Diameter up to 200 mm
- Rectangular: L 170 x W 167 mm

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Environmental performance

The high-end coating withstands the following environmental tests on a witness sample piece coated in the same batch:

Test	Standard	Para. / Method	Comments
Abrasion resistance	ISO 9211-4	01 – 04	Eraser, 10 N, 40 stroks
Windshield wiper test	TS 1888	Para. 5.4.3	5000 cycles at 100 rpm Sand: DEF-STAN 07-55 type C
Dust	*MIL-STD 810F	Method 510.5	Particle size < 150 µm 2 g/m³ / wind speed 15 m/s Temp. 23°C / 71°C Withstands 12 hour
Sand	*MIL-STD 810F	Method 510.5	Particle size: 150 – 850 µm 2 g/m³ / wind speed 15 m/s Temp. 71°C / 90 minutes Withstands 45 minutes
Salt fog	MIL-STD 810F	Method 509.4	
Humidity	MIL-C-48497	Para. 4.5.3.2	
	MIL-C-48497	Para. 4.5.8	

* In order to specify the MIL-STD 810F for our coatings, we based our evaluation on haze measurement, with a limit value of 30 % (limit between transmissive / di usive element), acc. to ASTM_D1003-00.

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