



Ocean Thin Films has over 50-years experience in the development and production of high performance thin film coatings, optical components and electro-optical assemblies that enable technologies in the medical device, defense, entertainment and sensing markets. We partner with our customers to create products exhibiting exceptional spectral performance and superior stability in harsh environments -- supporting you from rapid prototyping through high volume production. ■

UV-Guard™

High Performance UV-Blocking Filter

Ocean Thin Films UV-Guard™ filters are high performance filters, blocking ultraviolet and infrared radiation from high intensity arc lamps in projection display systems. This filter is also available in an extra blocking (XB) version for extremely high UV blocking. The high level of blocking ensures stringent requirements on UV suppression for microdisplay panels and other optical components, whereas the optional IR blocking reduces the heat load on these components. The UV-Guard™ and UV-Guard™ XB filters' excellent transmission for visible light results in high brightness and neutral colors. These filters are produced with Ocean Thin Films' patented sputtering deposition technology, providing very dense filter coatings with excellent optical stability both at higher operating temperatures and varying environmental conditions.



Benefits

- Excellent UV-rejection and IR suppression with high transmission for visible light.
- Narrow cut-on/cut-off edge tolerances ($< \pm 1\%$)
- Very steep cut-on slopes available
- Excellent spectral uniformity and stability
- Superior optical stability at higher operating temperatures (spectral stability $< 1 \text{ nm}/100^\circ\text{C}$) and in varying humidity environment ($< 0.5 \text{ nm}$ shift)
- Excellent mechanical properties (scratch resistant, adhesion)
- High volume production capabilities with consistent high quality.
- Engineering support for custom designed UV Blocking filters

Applications

UV-Guard™ filters are specially designed for the individual requirements in all major projection display system architectures: DLP®, tLCD and LCOS. Other application areas are in lighting and instrumentation.

Technical Data

UV-Guard™ types available

UV-Guard™ filters with broadband RGB transmission
 UV-Guard™ with IR blocking filters with broadband RGB transmission
 UV-Guard™ with IR blocking filters with extended IR blocking ranges
 UV-Guard™ XB filters with increased blocking in the UV wavelengths
 UV-Guard™ XB with extended IR blocking ranges

Typical performance for UV-Guard™ * (AOI = 0°)

	UV-Filter type	UV/IR-Filter type
T = 50%	420 ± nm	420 ± 4nm 700 ± 8nm
300-400nm	T-avg<0.5%	T-avg <0.5%
440-680nm	T-avg>97%	T-avg>95%
750-900nm	n.a.	T-avg<2%
20/80% slope	<9nm	<9nm, < 24nm

*other performance upon customer request

Typical performance UV-Guard™ XB* (AOI = 0°)

	UV-Filter type	UV/IR-Filter type
T = 50%	430 ± 4nm	430 ± 4nm 680 ± 6nm
T20%-T80%	<6nm	<8nm (UV) <16nm (16)
300-380nm	T<0.001%	T<0.001%
380-420nm	dlogT/dλ ~0.1nm ⁻¹	dlogT/dλ ~0.1nm ⁻¹
440-660nm	T-avg>96%	T-avg>95%
750-900nm	n.a.	T.avg<2%

*other performance upon customer request

Heat resistant

up to 400°C

Surface quality

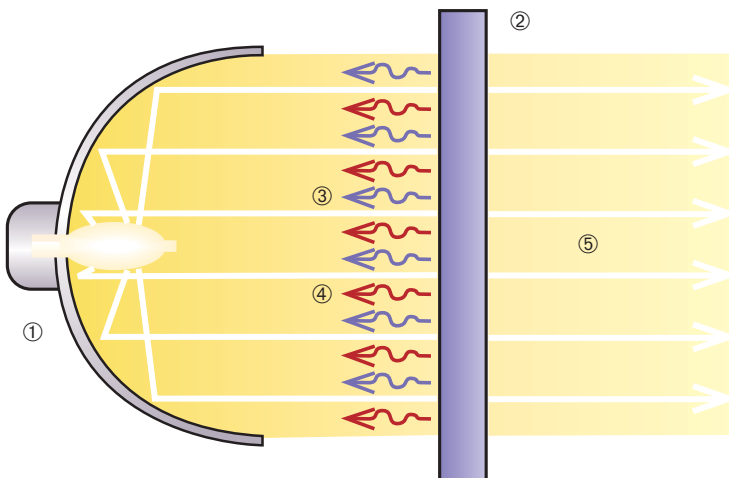
80/50 (typical)

Environmental stability

according to MIL-14806C

Substrate material

heat resistant borosilcate glass

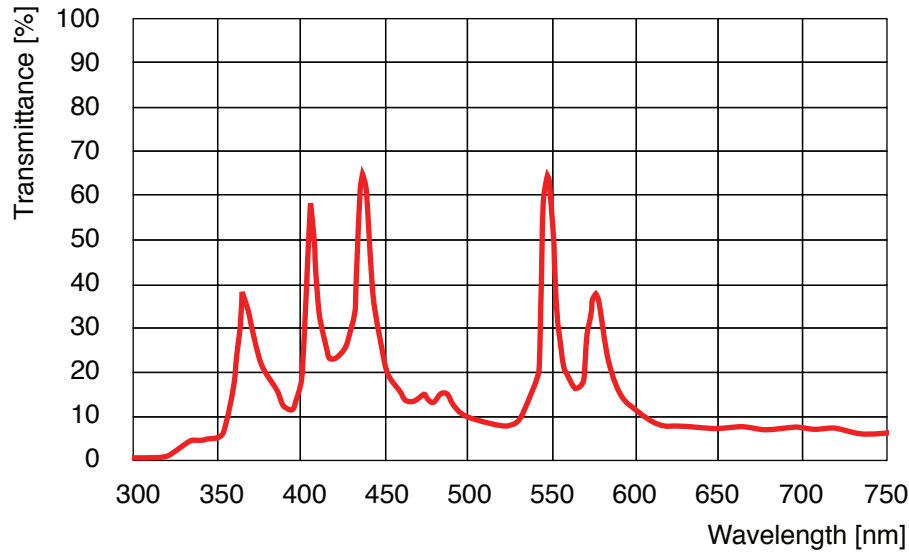


Schematic of UV-Guard

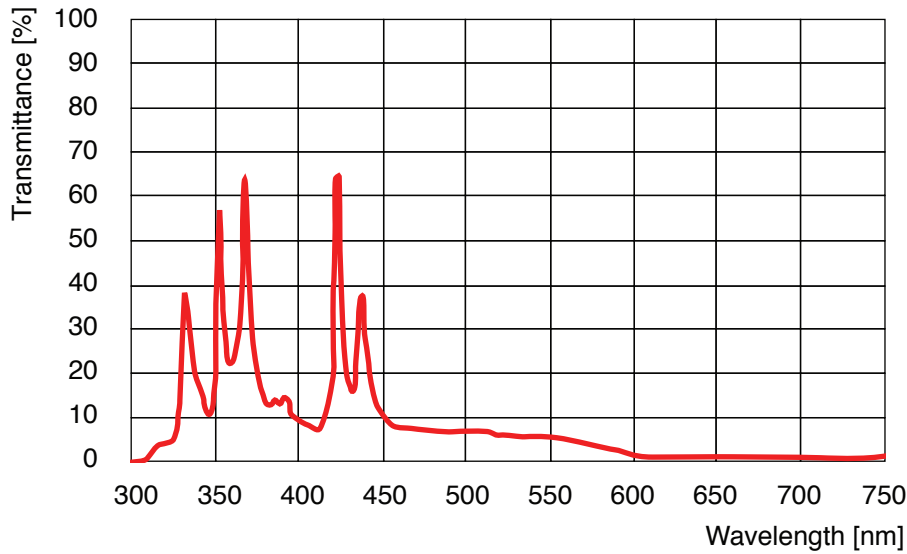
1. Lamp with reflector
2. UV-Guard™
3. Blocked UV radiation
4. Blocked IR radiation
5. Transmitted visible light

Typical spectral curves of UV-Guard™ Filters and emissions spectrum of typical UHP lamp

UV filter



UV-Guard™



oceanthinfilms.com
E: info@oceanthinfilms.com
8060 Bryan Dairy Road
Largo, FL 33777
T: +1.727.545.0741
16080 Table Mountain Parkway
Suite 100, Golden, CO 80403
T: +1.303.273.2995