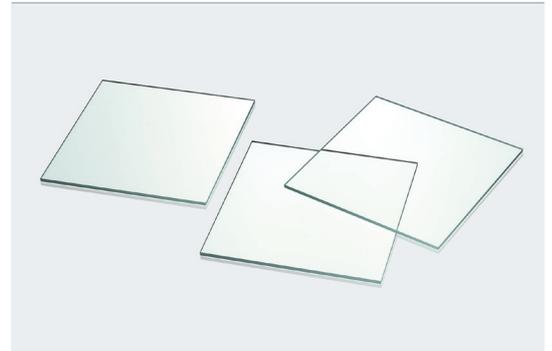




UV-Guard™

High Performance UV-Blocking Filter for Projection Display Applications

Materion Balzers Optics UV-Guard™ filters are high performance blocking filters for ultraviolet and infrared radiation from high intensity arc lamps in projection display systems. 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™ filters' excellent transmission for visible light results in high brightness and neutral colors. UV-Guard™ filters are produced with Materion Balzers Optics' patented sputtering deposition technology, providing very dense filter coatings with excellent optical stability both at higher operating temperatures and varying environmental conditions.

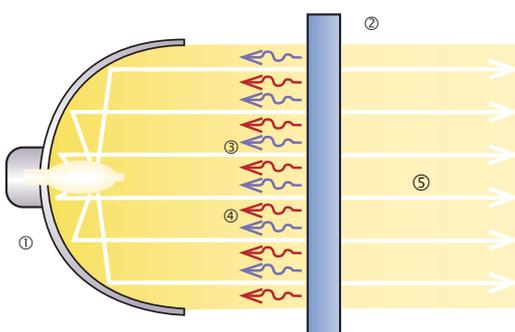


Benefits

- 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 $< 1 \text{ nm}/100 \text{ }^\circ\text{C}$) 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-Guard™

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-blocking filters with broadband RGB transmission

UV/IR blocking filters with broadband RGB transmission

UV/IR blocking filters with extended IR blocking ranges

UV-blocking filters optimized for blue channel in tLCD architectures (high UV rejection, steep cut-on edge slope)

Typical performance* (AOI = 0°)

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

* 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 borosilicate glass

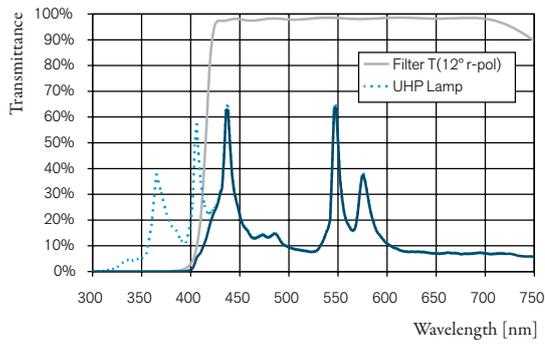
Schematic of UV-Guard™

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

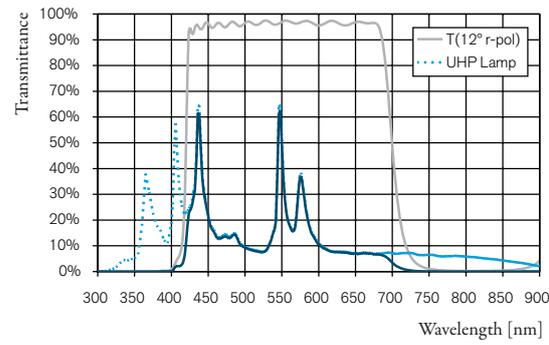


Typical spectral curves of UV-Guard™ Filters and emission spectrum of typical UHP lamp

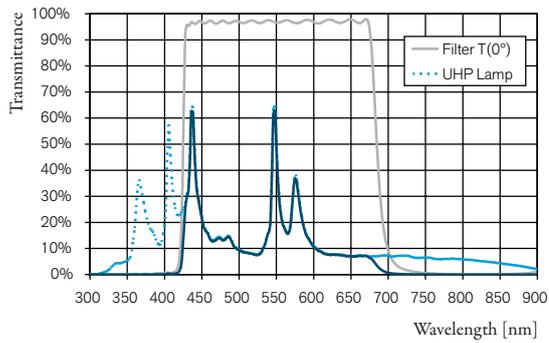
UV filter for DLP*



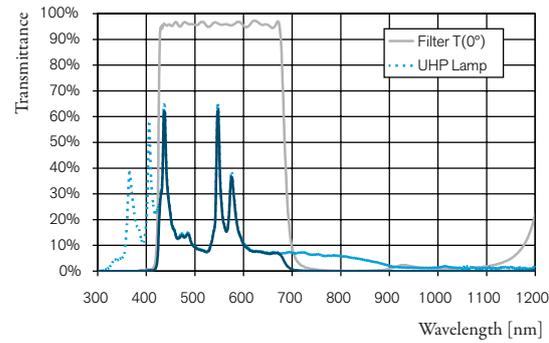
UV/IR filter for DLP*



UV/IR filter for tLCD/LCOS



UV/IR filter with extended IR blocking



UV filter for tLCD blue channel

