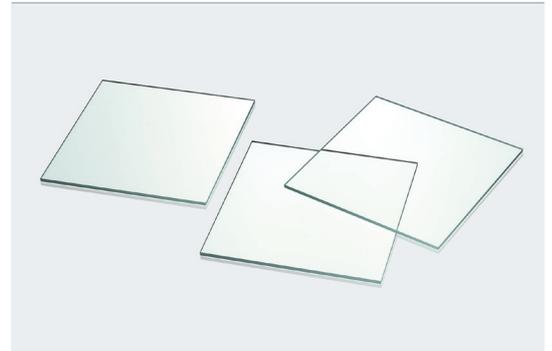




UV-Guard™ XB

Extreme UV-Blocking Filters

Materion Balzers Optics UV-Guard™ XB filters are high performance dichroic filters with extremely high blocking for ultraviolet radiation and optional IR blocking characteristics. The outstanding UV blocking is achieved with a combination of tailored dichroic coatings produced with Materion Balzers Optics' proprietary sputter deposition technology. Standard borosilicate glass substrates are used for UV-Guard™ XB filters. The UV blocking levels of UV-Guard™ XB filters are similar to UV-absorption glass, without high substrate cost and temperature dependent spectral performance. UV-Guard™ XB dichroic filter coatings can be applied on flat shaped customer specific substrates including flyeye lens.



Benefits

- Extremely high UV-rejection (typ better than 10⁻⁵), similar to UV-absorption glass
- Superior optical stability at higher operating temperatures (spectral stability typ. < 0.7 nm/100 °C)
- Very narrow cut-on/cut-off edge tolerances (< ± 1%)
- Very steep cut-on slopes available
- High transmission for visible light
- Excellent spectral uniformity and stability under varying environmental conditions (spectral shift typ. < 0.5 nm)
- Standard low cost borosilicate substrates (other glass substrates upon customer request)
- High volume production capabilities
- Engineering support for custom designed UV-Guard™ XB filters

- Secondary UV filter for blue channel
- Other applications which involve UV-sensitive optical components in instrumentation and sensors.

Technical Data

Typical performance* (AOI = 0°)

	UV-Filter type	UV/IR-Filter type
T = 50%	430 ± 4 nm	430 ± 4 nm 680 ± 6 nm
T20%–T80%	< 6nm	< 8 nm (UV) < 16 nm (IR)
300–380 nm	T < 0.001%	T < 0.001%
380–420 nm	dlogT/dλ ~0.1 nm ⁻¹	dlogT/dλ ~0.15 nm ⁻¹
440–660 nm	T-avg > 96%	T-avg > 95%
750–900 nm	n.a.	T-avg < 2%

* other performance upon customer request

Applications

UV Guard™ XB filters are specially designed for applications which require extraordinary blocking of UV radiation. Typical applications are in tLCD and LCOS based projection display systems:

- Primary UVIR filter at UHP lamp

Heat resistant up to 400°C

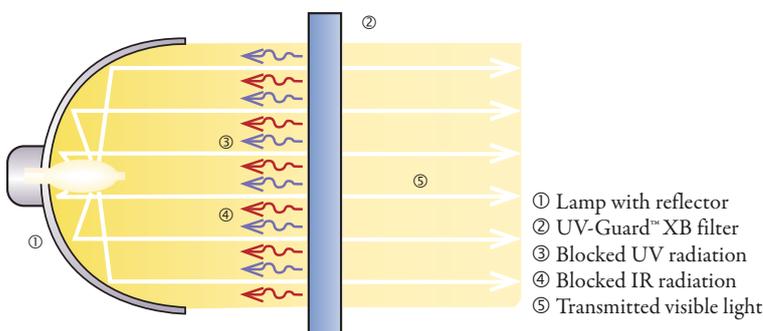
Surface quality 80/50 (typical)

Environmental stability according to MIL-M-13508C

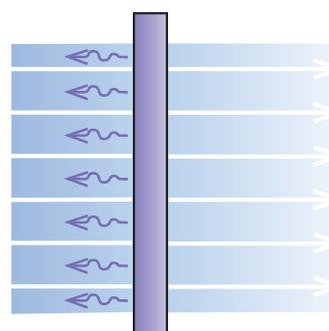
Substrate material heat resistant Borosilicate glass

UV-Guard™ XB types available

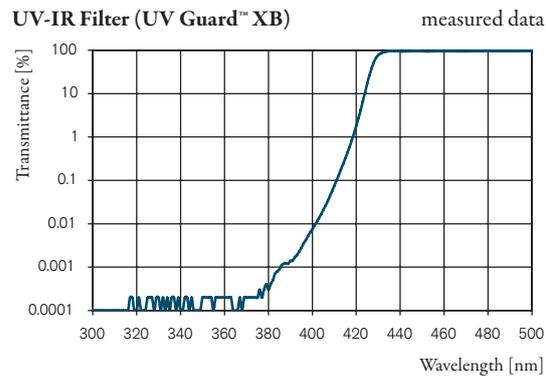
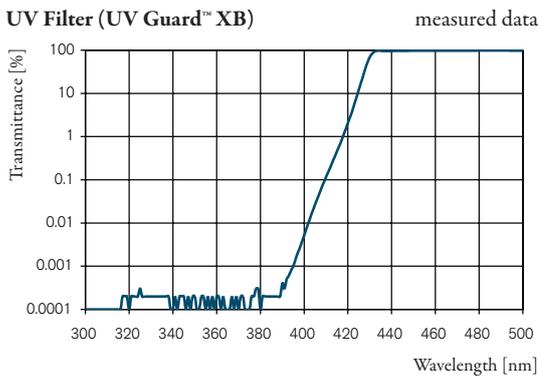
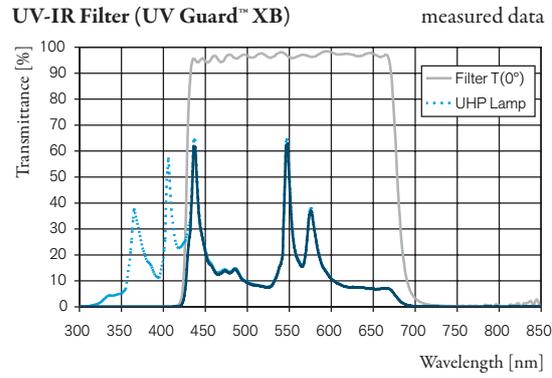
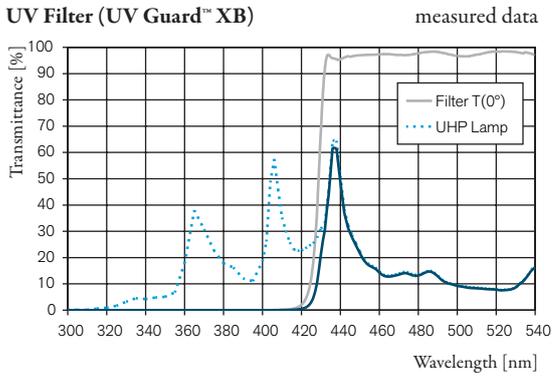
UV-IR filter application of UV-Guard™ XB



UV filter application of UV-Guard™ XB



Typical spectral curves of UV-Guard™ XB Filters together with emission spectrum of typical UHP lamp



UV-blocking filter for blue channel in tLCD

Primary UVIR filter with extreme UV-blocking for tLCD/
LCOS

UV blocking filter with broadband RGB transmission