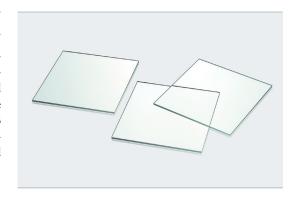


// BALZERS OPTICS

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 depostion 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

Technical Data

Typical performance* (AOI = 0°)

Secondary UV filter for blue channel

components in instrumentation and sensors.

Other applications which involve UV-sensitive optical

$430 \pm 4 \text{nm}$	$430 \pm 4 \mathrm{nm}$
	$680 \pm 6 \mathrm{nm}$
< 6nm	< 8 nm (UV)
	< 16 nm (IR)
T < 0.001%	T < 0.001%
$dlogT/d\lambda \sim 0.1 nm^{-1}$	$dlogT/d\lambda \sim 0.15 nm^{-1}$
T-avg > 96%	T-avg > 95%
n.a.	T-avg < 2%
	$< 6 \text{nm}$ $T < 0.001\%$ $d \log T / d \lambda \sim 0.1 \text{nm}^{-1}$ $T \text{-avg} > 96\%$

^{*} other performance upon customer request

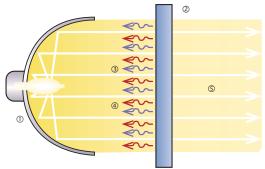
Heat resistant	up to 400°C
Surface quality	80/50 (typical)
Environmental stability	
according to MIL-M-13508C	
Substrate material	
heat resistant Borosilicate glas	SS
UV-Guard™ XB types availa	ble

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:

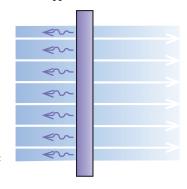
Primary UVIR filter at UHP lamp

UV-IR filter application of UV-Guard™ XB



- ① Lamp with reflector
- ② UV-Guard™ XB filter
- ③ Blocked UV radiation④ Blocked IR radiation
- © Transmitted visible light

$UV \ filter \ application \ of \ UV\text{-}Guard^{\text{\tiny TM}}XB$



Optics Balzers AG Neugrüt 35 LI-9496 Balzers

Liechtenstein T +423 388 9200 F +423 388 9390 info.mbo@materion.com www.materionbalzersoptics.com

MBO 037 PE (2206-1)

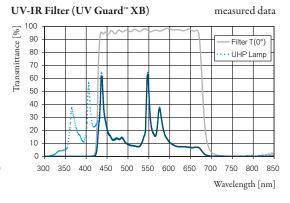
Subject to technical change without notice

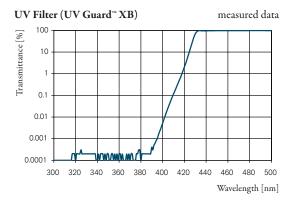
1/2

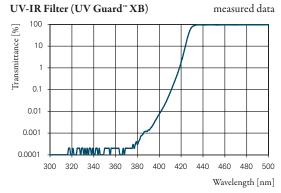


Typical spectral curves of UV-Guard™ XB Filters together with emission spectrum of typical UHP lamp

UV Filter (UV Guard™ XB) measured data Filter T(0°) 100 40 300 300 320 340 360 380 400 420 440 460 480 500 520 540 Wavelength [nm]







 $\frac{\text{UV-blocking filter for blue channel in tLCD}}{\text{Primary UVIR filter with extreme UV-blocking for tLCD/}}$ LCOS

UV blocking filter with broadband RGB transmission

Optics Balzers AG Neugrüt 35 LI-9496 Balzers

Liechtenstein T +423 388 9200 F +423 388 9390 info.mbo@materion.com www.materionbalzersoptics.com