

Fluorescence Filters

Viavi Solutions builds fluorescence filter sets for applications in fluorescence microscopy and other biomedical applications. In one of the more common applications, a filter set is composed of an excitation filter, an emission filter, and a dichroic beamsplitter. A filter set may be designed to work with a single fluorophore or with multiple fluorophores simultaneously.

The superior precision and repeatability of the new Ucp-1 filter deposition platform enables the realization of filters with exceptional blocking levels, high transmission levels, and very steep transition zones. The practical result in fluorescence based applications is bright, high-contrast images.

Viavi's Ucp-1 platform is a magnetron-sputtering-based deposition system. The high throughput of the system is enabled by a high material deposition rate combined with the incorporation of a load lock which reduces chamber down time. Coatings deposited with the Ucp-1 platform are fully dense and robust, and have the same durability as coatings deposited using other energetic film deposition processes such as ion beam sputtering and ion-assisted deposition. Ucp-1 coatings pass the environmental durability tests cited in ISO-9211-3 Category C, as well as extended cyclic humidity testing as described in MIL-STD-810F (5 cycles) with-out measurable change in their spectral characteristics.

Key Features

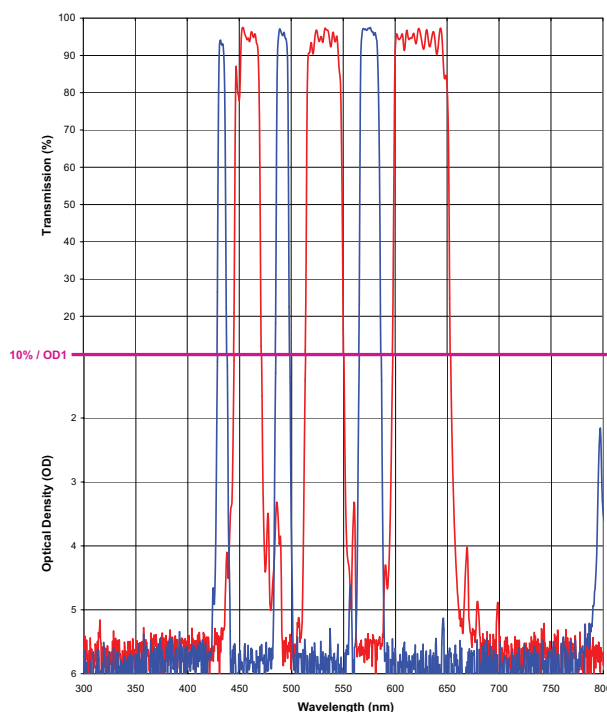
- High peak transmission
- Deep blocking over wide spectral ranges
- Steep transition slopes
- Precise edge placement
- Low autofluorescence
- Hard dielectric coatings that are robust and reliable
- Single substrate, epoxy free optical path
- High brightness
- Large signal to noise ratio/high contrast
- Customer-specified sizes and mounting options available

Applications

- Fluorescence microscopy
- Confocal microscopy
- Flow cytometry
- Genotyping
- Microplate readers
- Imaging systems
- Spectroscopy

Ucp-1-deposited excitation (blue) and emission (red) triple-band filters for simultaneous viewing of three fluorophores: CFP, YFP, DsRed

Blocking (>OD6 – note that measurement is noise limited)



Specifications

Representative Specifications for Custom Fluorescence Filter Sets

	Exciter	Emitter	Dichronic
Substrates		BK7, UBK7, fused Silica	
Passband transmission ¹	>90%	>90%	>90%
Reflection	N/A	N/A	>98%
Dimensional tolerance		+0.0/−0.1 mm	
Thickness tolerance			
Surface quality		60 – 40 Scratch-Dig	
Clear aperture		>80% of Filter Dimension	
Blocking ²	>OD6	>OD6	N/A
Environmental/Reliability/Durability	ISO-9211-3 Catagory C/MIL-STD 810F/MIL-STD 48497A		

1. Filters having passbands below 400 nm may have lower transmission.

2. Blocking exceeds OD6 in required spectral regions.

Ordering Information

For more information on this or other products and their availability, please contact your local Viavi account manager or Viavi directly at 1-800-254-3684 or via e-mail at ospcustomerservice@viavisolutions.com.



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