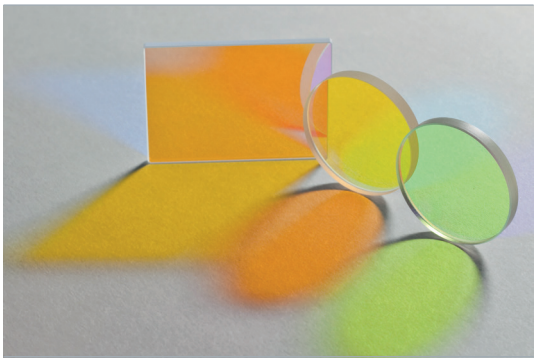
MATERION
// BALZERS OPTICS

Multispectral Optical Coatings

Optical Filters optimized for most complex Applications

Whenever there is a need for multiple filters in one setup like in multi-excitation Raman Spectroscopy or in multi-fluorescence applications, multispectral optical coatings are an efficient alternative. Materion Balzers Optics provides best in class spectral flexibility and highly customizable filters like multi-bandpass filters which suit many fluorophores at once. Additionally filter dimensions, spectral characteristic and angle of incidence can be customized to complement the specific sensor and light source performance. By using advanced plasma-assisted deposition processes the all-dielectric filters demonstrate low absorption and a superior environmental stability.



Benefits

- Spectral performance specially adapted to the customer needs
- Sharp separation between reflected and transmitted wavelength ranges
- Dielectric filters with low absorption
- Long-term shift-free spectral performance
- Excellent environmental stability

Applications

- Filters specially adapted to complement complex sensor sensitivities or special light sources
- Solar simulators for solar cell performance testing
- direct coating of CMOS sensors
- fluorescence microscopy
- raman spectroscopy

Technical Data

Wavelength range
from UV to NIR
Angle of incidence
Standard 0°, 45°, different AOI on request
Substrate
Optical Glass
Dimensions
Standard size Ø25x3mm, other dimensions on request
Environmental stability
-100°C ... +150°C
Filters also withstand gamma and proton radiation

Triple Bandpass Filter with additional Neutral Density Filter

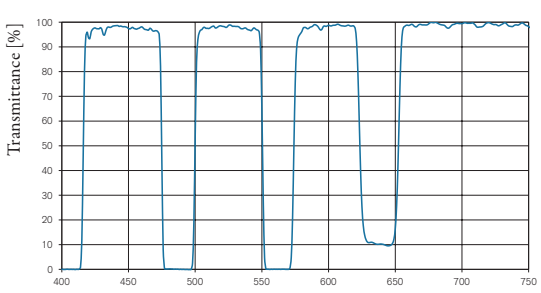


Fig. 1: A single Materion Balzers Optics filter may replace three individual bandpass filters at 420nm – 480nm, 500nm – 550nm, 570nm – 620nm as well as one neutral density filter at 620nm – 650nm.

Triple Beamsplitter

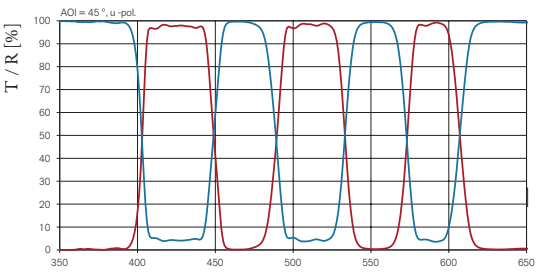


Fig. 2: Spectral transmittance and reflectance of a multi beamsplitter, operating in three spectral bands.

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Customized filter performance, specially adapted to your setup

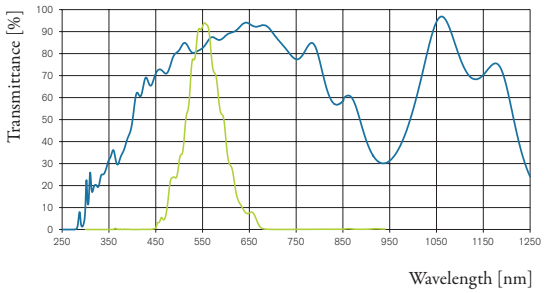

Fig. 3: Customized filter performance to complement special light sources and detector sensitivities. Combined with an appropriate setup the green curve presents the luminosity function, describing the spectral sensitivity of the human eye. The blue curve modifies the spectral behavior of a special light source to create an artificial sun-like spectrum. This allows realizing an artificial sunlight illumination in laboratory environment.

Color-corrected Notch Filter for an optimized white balance

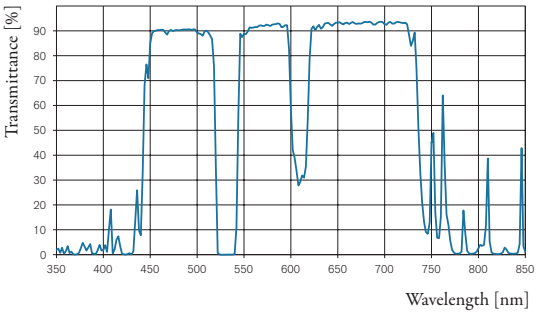

Fig. 4: Color-corrected Notch Filter that assures an optimum white balance. The color-coordinates of the transmitted light are x/y=0.33±0.02 according to CIE 1931xy.

Notch Filter with high level transmission

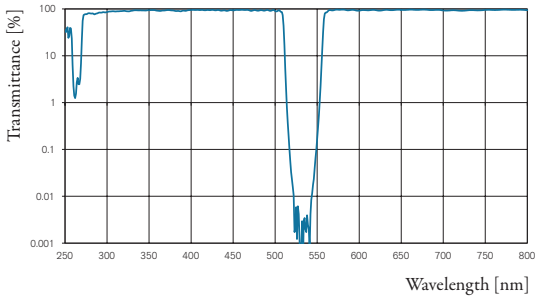

Fig. 5: Notch Filter with high-level transmission in the VIS spectral range.

Triple Notch Filter with additional Neutral Density Filter

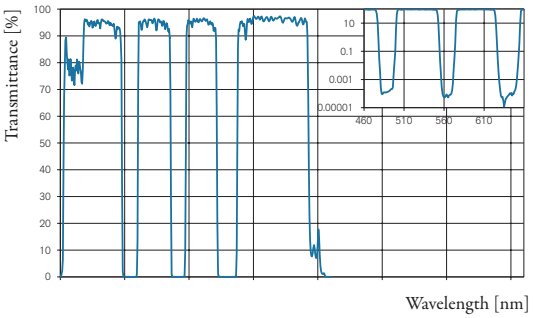

Fig. 6: Triple Notch Filter with an additional Neutral Density Filter around 400nm. The attenuation is up to 60dB.

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