Interference Filter

A interference filter is used to isolate and transmit a narrow wavelength that is required and block all other wavelengths.

Bandpass

The wavelength range (or band) where transmission is allowed to be passed by a wavelength selective optical component. Transmission above or below the wavelength is restricted through absorption and/or reflection.

Blocking/ Out-of-band blocking

The undesired filter transmittance outside the pass-band/ band-pass region. Absolute blocking is the transmittance level not exceeded at any point in the specified wavelength range. Average blocking is a value averaged over a range. Out-of- band blocking is often termed as "OD value"
OD1 = 10% transmission OD2 = 1% transmission OD3 = 0.1% transmission OD4 = 0.01% transmission OD5 = 0.001% transmission

Full-width Half-Maximum (HBW, FWHM)

The bandwidth as measured at half-power points.

Centre Wavelength (CWL)

The wavelength at the midpoint of the half power bandwidth (FWHM).

Filter Cavity

An optical "sandwich" of two evaporated stacks of dielectric reflective layers separated by a dielectric spacer layer. Interference filters can be constructed with one or several cavities arranged in series. Our standard range of interference filters are 3 cavity type.

Peak Transmission (T)

The guaranteed transmission percentage in the passband. Not necessarily at the centre wavelength but over the pass band.

Scribing

Removal of the outer diameter of coating layer, outside of the clear aperture. This process is carried out prior to critical bonding process.

Temperature effect on Interference band pass filters

%T will not change with temperature. The CWL drift is approximately 0.02nm/Degree C. Cooling will decrease CWL, heating will increase CWL.

Technical Notes

• To estimate the transmittance near the passband, use the bandwidth ratios given in "specifications" e.g. 340FIB12 has HBW-10; for FIB range 1%BW/HBW=1.99,so 1%BW-19.9; i.e transmittance will be 1% of peak (about 0.3% absolute) at 340nm ±(19.9/2), i.e. about 30nm and 350nm.

• For light incident at an angle the centre wavelength ()= (1-k sin2) where k is approximately 0.24 for FIW filters and 0.11 for all others.

The CWL shifts towards the longer wavelengths with increasing temperature at about 0.1nm/K.