

Wilson Analytical Filter Combinations for Specific Fluorescent Dyes

Wilson Analytical's spectroscopy systems use high-grade optical filters to ensure precise fluorescence excitation and emission measurements. This document explains their use, and how to select them for specific applications. All optical filters are installed at time of manufacture in the Wilson Analytical QuatBox and LabBox systems but are easily user-interchangeable in the Wilson Analytical Open Platform System.

Fluorescent Dye	Excitation Max in nm	Emission Max in nm	Excitation Light Source Wavelength in nm (colour)	Shortpass Optical Filter for Light Source	Longpass Optical Filter for Spectrometer
Heochst 33342	350	461	365 (UV)	Hoya U-340 UV SP	Thin Film UV Sheet LP
Oilfield Corrosion Inhibitors with APQs	325	492	365 (UV)	Hoya U-340 UV SP	Thin Film UV Sheet LP
8-Hydroxypyrene- 1,3,6-trisulfonic acid trisodium salt (HTPS)	403	520	405 (Violet)	450 nm SP OD 4	450 nm LP OD 4
Fluorescein or Uranine (disodium salt)	491	516	460 (Blue)	475 nm SP OD 4	500 nm LP OD 4
Fluorescein Isothiocyanate (FITC)	495	519	460 (Blue)	475 nm SP OD 4	500 nm LP OD 4
Rhodamine WT	555	580	525 (Green)	550 nm SP OD 4	575 nm LP OD 4
7-AAD	546	647	525 (Green)	600 nm SP OD 4	620 nm Hoya R-62 LP

Our systems are not limited to the dyes listed in the table, please contact us for further information regarding other fluorescent materials.

Shortpass (SP) filters, which only allow shorter wavelengths than the cut-off value to pass, are installed into Wilson Analytical's light sources during manufacture. These SP filters stop the excitation LED's long wavelength "tail" from interfering with the detection system, or from exciting samples at a longer wavelength than intended. The standard SP cut-off wavelengths available at time of order are listed above, but filters can be custom ordered for specific requirements. SP filters can also be changed by returning the light source to Wilson Analytical for upgrading.

Longpass (LP) optical filters have an inverse function to SP optical filters in that LP optical filters block shorter wavelengths than the cut-off value but allow longer wavelengths to pass. LP optical filters are installed into Wilson Analytical's spectrometer lens filter holders and keep the light source excitation wavelength from reaching the spectrometer. This ensures the obtained fluorescence spectrum is a result of the sample rather than an artifact of the light source. The standard LP cut-off wavelengths available at time of order are listed above, but filters can be custom ordered for specific requirements.

For the Wilson Analytical Open Platform System, the spectrometer LP filters can be changed by the user in less than one minute. Please contact us for upgrade options if the optical filters in your Wilson Analytical QuatBox or LabBox require changing to meet new requirements.

For more information contact:

Wilson Analytical Services Inc.
Ken Schmidt
780.702.0610
ken@wilsonanalytical.com