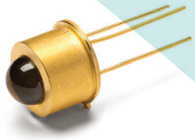
Crystal IS™
High Performance UVC LEDs

High spectral quality of Crystal IS LEDs improves measurement accuracy and sensitivity



Many spectroscopic applications require a high selectivity to a particular discrete wavelength. In these applications it is common practice to use band pass filters to suppress light from the undesired wavelengths emanating from a broad spectrum lamp. This approach can also diminish the intensity at the desired wavelength and increases system cost. In contrast, LEDs have simple spectra with a prevalent single peak and narrow spectral bandwidth.

In order to capitalize on the predominant peak, it is essential that any secondary peaks are minimized through superior manufacturing practices. Autofluorescence describes a phenomena of light absorption by the substrate and re-emission. A high quality UV LED with a lower absorbing substrate will reduce the magnitude of this autofluorescence. For very sensitive measurements, good spectral quality of a UV LED means that the longer wavelength secondary peak is barely perceptible. Otherwise, interference from this secondary peak can diminish accuracy, such as in the case of absorption or fluorescence spectroscopy.

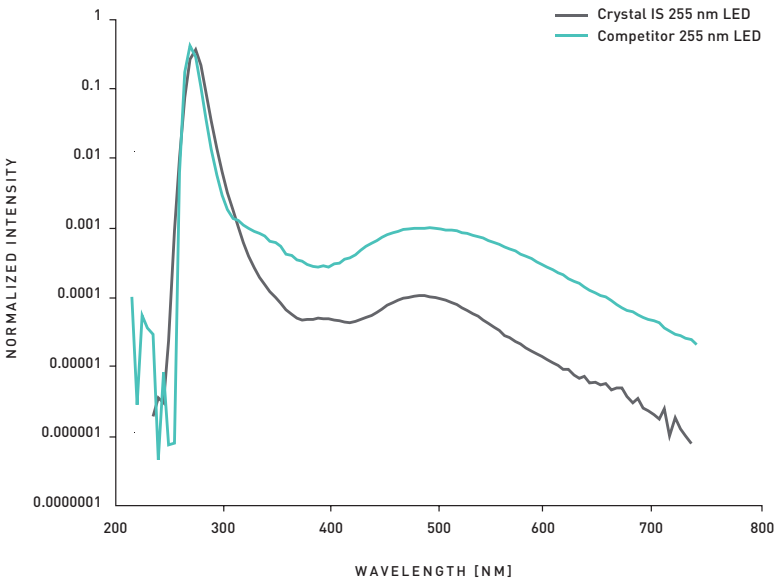
Applications:

> WATER QUALITY MONITORING

> HPLC DETECTION

> CDOM MONITORING

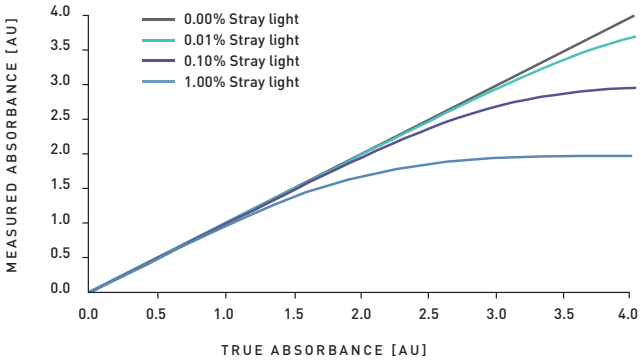
SPECTRAL QUALITY COMPARISON



The secondary peak in Crystal IS LEDs is more than one order of magnitude lower intensity than the secondary peak in other commercial UVC LEDs.

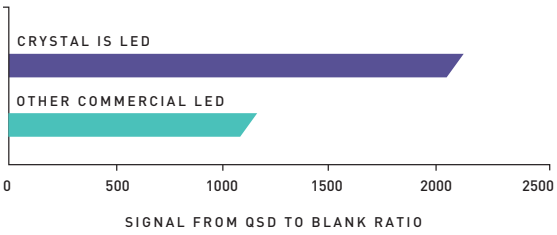
Absorption spectroscopy is used in high performance liquid chromatography (HPLC), DNA purity measurements, water quality measurements and ozone monitoring. Quantitative analysis is based on the principle of Beer-Lambert law. In theory this is a linear relationship. However, very small amounts of stray light outside the UV range can reach the detector and interfere with quantification, by being interpreted as a lower level of concentration of absorbing species than is actual.

LINEARITY OF MEASUREMENT VERSUS STRAY LIGHT



UV fluorescence spectroscopy (UV fluorometry) is used for trace detection in environmental, industrial and biotechnology industries. Fluorescent species are characterized by an excitation wavelength and an emission spectrum. As in absorption, secondary peaks from a light source can interfere with the interpretation of the emission spectra as there is a potential for overlapping wavelength and reduced signal-to-blank ratios. This is particularly acute when fluorescent quantum yields are low.

COMPARISON OF FLUORESCENCE SENSITIVITY



The superior spectral quality of Crystal IS LEDs leads to better signal-to-blank ratios in fluorescence.

The high performance of Crystal IS UVC LEDs—from superior spectral quality to high light output to longer lifetimes—make them ideal for both absorption and fluorescence spectroscopy applications in analytical and life sciences instrumentation.

We invite you to learn more about our UVC LEDs.

Crystal IS™
High Performance UVC LEDs

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