

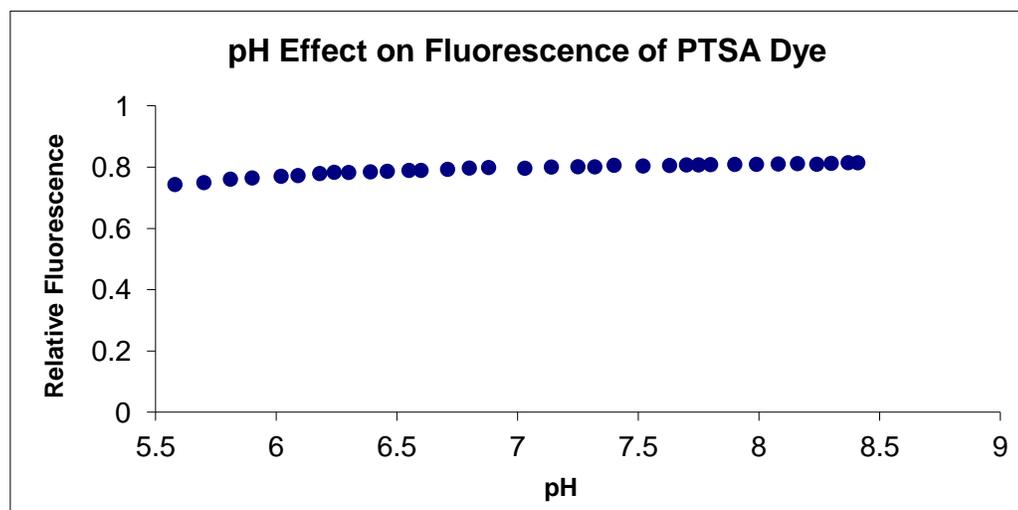
PTSA Calibration Standard

Turner Designs offers a UV line of optical sensors that are used to detect the fluorescence of Crude Oil, Optical Brighteners, CDOM/FDOM, or PTSA in water. Calibrations of these sensors are carried out by end users and require the use of a calibration standard to convert the raw signal output to actual concentration estimates. However, most standards used to calibrate UV sensors are toxic, extremely flammable, hard to handle, and may have strict regulations for disposal. Quinine Sulfate is a popular standard used for calibrating *in situ* CDOM fluorometers, but it can be toxic and should not be dumped down the drain because it is typically mixed in sulfuric acid, another compound that can cause harm to humans during handling. Using oil standards can be dangerous because they are highly toxic and require a hazmat trained specialist, breathing apparatus, gloves, fume hood, lab coat, etc.

To alleviate the risk and cost associated with handling hazardous materials for the purpose of standardizing UV fluorometers, Turner Designs offers PTSA (1,3,6,8-pyrenetetrasulfonic acid tetrasodium salt) as a liquid calibration standard in the following concentrations:

100 ppb – (PN: 10-608)
300 ppb – (PN: 10-607)
400 ppb – (PN: 10-609)

PTSA is a fluorescent dye that emits wavelengths between 400 and 500 nm when irradiated with UV light. This material has a low temperature coefficient ($0.00126 / ^\circ\text{C}$) and is stable over a broad pH range.



PTSA is safe to handle, easy to dilute (specific gravity is 1.0), non-toxic or flammable, not reactive with other compounds, and non-hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, therefore it is not subject to federal regulations for disposal considerations (*Note: make sure to check with the appropriate local or state departments to determine if the release is reportable under applicable laws and regulations for your region*). PTSA is an ideal lab standard that can be used to standardize fluorometers configured for detection of CDOM/FDOM, Crude Oil, Optical Brighteners, and PTSA.

PTSA can be used to standardize all of Turner Designs' UV optical sensors or fluorometers. Also, customers who want to compare standardized UV sensors across multiple applications, either from the same or different manufacturer, can use PTSA so that values are reported as a standard unit of measure making it easier to compare instrumentation deployed at long distances from each other