

## Cyanobacteria (Phycocyanin) Fluorometer Kit

### Description:

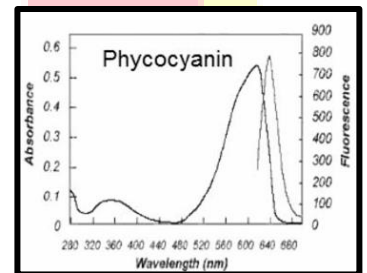
**Cyanobacteria**, also known as blue-green algae, is a phylum of bacteria that obtain their energy through photosynthesis. Aquatic cyanobacteria are known for their extensive and highly visible blooms that can form in both freshwater and marine environments. The blooms can have the appearance of blue-green paint or scum. These blooms can be toxic, and frequently lead to the closure of recreational waters when spotted. For these reasons alone it should be clear that there is an interest in measuring concentrations of Cyanobacteria.

### Fluorescence Detection:

**Phycocyanin:** Cyanobacteria contain accessory pigments from the phycobiliprotein family. In fresh water, the primary phycobilin pigments is **phycocyanin** (PC) that happens to have strong fluorescent signatures that do not interfere with the fluorescence of the chlorophylls. This allows for the *in vivo* detection of cyanobacteria without interference from other groups of algae. From this perspective, fluorometric technique is the most versatile, sensitive, and convenient way to measure the concentrations of Cyanobacteria in water. hVI's phycocyanin quantification fluorometer uses sophisticated electronic and optical system to detect low level of phycocyanin in water, and generally the fluorescence signal is directly proportional to the PC concentration. Application examples include, but are not limited to, the monitoring of Cyanobacteria in natural freshwater environments, reservoirs, water and sewage treatment plants, and aquacultural systems.

### Fluorometer Specifications:

- Uses standard 1-cm cuvette for easy sample collection.
- Rapid (5 seconds reading) and sensitive (<5ppb).
- Wide measurement range (0 – 30,000 ppb with proper calibration).
- Simple touch screen calibration. No repeated calibrations needed.
- Portable for field operation, and store up to 3x80 data points for computer analysis.



### Field Kit includes:

- Handheld fluorometer, with USB Cable, 5VDC Power Supply, and Software CD
- Disposable 500- $\mu$ L Transfer Pipette, 30pcs/bag
- 1-cm plastic cuvette with cap, 64pcs/box

### Procedure:

1. Add 2 mL of water sample into a cuvette as "Sample". Filter the water to reduce turbidity first if necessary.
2. Add the same amount of dH<sub>2</sub>O into another cuvette as "Blank".
3. If the fluorometer has not been calibrated, prepare one standard PC solution according to your measurement range. Pipette 2 mL of diluted solution into another cuvette as "Standard".
4. Switch on the fluorometer. To calibrate the fluorometer, place the "Blank" tube into the sample holder. Secure the cover cap. From the Main screen, press [Calibrate] → [Confirm] → [Assay 1] (or another assay number you like) → [Blank]. Fluorometer starts measuring. After the blank is measured, use the "<" and ">" arrow keys on the second row to move the underline and select the digit you want to change, and use the "+" or "-" keys to increase or decrease the value of the underlined digit to define the Standard value. Place the "Standard" tube into the sample holder and secure the cap. Press [Measure]. The fluorometer shows "Calibration Finished". The fluorometer is now calibrated. Press [Return].
5. Measure: Place the "Sample" tube into the sample holder and secure the cap. From the Main screen, press [Measure] → [Assay 1] (or the assay you selected earlier in calibration) → [Measure]. The PC concentration will be displayed in the window. Record the data, or press [Save] to save the data for later retrieval. Press [Return] and then [Measure] for the next sample. Note: if "Sample" concentration is higher than the upper limit, dilute in dH<sub>2</sub>O and repeat assay.