

Introduction

The following information describes how to use the Solid Secondary Standard Cap and Solid Secondary Standard Inserts for the Cyclops Integrator:

P/N 2600-900	Solid Secondary Standard Cap
P/N 2600-901	Solid Secondary Standard Insert for <i>in vivo</i> Chlorophyll, Rhodamine WT, Fluorescein, Phycocyanin, and Phycoerythrin
P/N 2600-902	Solid Secondary Standard insert for CDOM, Crude Oil, Refined Fuels, and Optical Brighteners

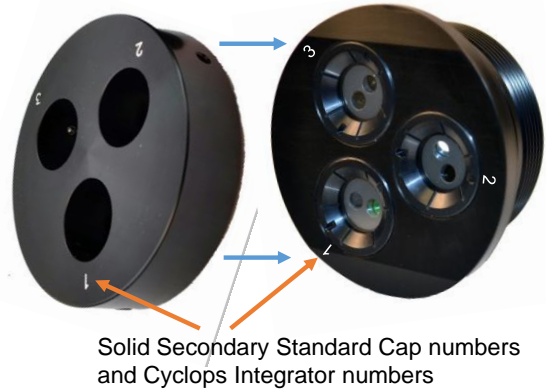
Features

- Can be used in place of a primary liquid standard once a correlation between a primary standard and the solid standard is established.
- Can be used to check fluorometer stability.
- Provides a broad range of very stable fluorescent responses.
- Adjustment screw allows users to set to a desired signal level.



Installation

- 1) Align Solid Secondary Standard Cap numbers with the Cyclops Integrator's numbers located on the optical head and set the Solid Secondary Standard Cap in place.



- 2) Make sure that the raised machined lip of the Solid Secondary Standard Cap fits into the recessed optical ring of the Cyclops Integrator. The cap should be flush with the Cyclops Integrator and not able to rotate.
- 3) Insert up to 3 Solid Standards into the desired optical ports on the Solid Standard Cap.



- 4) Rotate the Solid Standard(s) until set into position. *Note: You will feel/hear a click when the Solid Standard is positioned properly.*

Solid Standard Adjustment

To adjust each solid standard, use a screwdriver to unscrew the locking nut counter-clockwise as far as it will go.



To change the signal level, insert the green screwdriver through the hole in the locking nut. Rotate it in either direction until it engages with the adjustment screw that is beneath the locking nut.

The signal can be adjusted to the desired reading by turning the screw. Turning clockwise increases the signal and counterclockwise decreases the signal.

Once the desired reading has been obtained, the locking nut should be screwed down so that the adjustment screw is held firmly in place.

Note: Every sensor will have a unique response to a solid standard.

Use of the Solid Secondary Standard for *in vivo* Chlorophyll Applications:

1. Using your Cyclops Integrator, measure a sample containing algae and record the response (digital count) values for that measurement.
2. Dry off the optical end of the Cyclops Integrator and attach the Solid Secondary Standard cap and insert to the fluorometer. Adjust the Solid Secondary Standard to produce the same response as in step 1.
3. Perform a chlorophyll extraction to determine the actual chlorophyll concentration of the sample.

NOTE: EPA Method 445.0 (*in vitro* determination of chlorophyll in algae) can be found on Turner Designs' website.

4. The Solid Secondary Standard's signal is now equivalent to the concentration estimate determined from step 3.

Use of the Solid Secondary Standard for Dye Tracing Applications:

1. Using your Cyclops Integrator, measure a dye solution with known concentration and record the response values for that measurement.
4. Dry off the optical end of the Cyclops Integrator and attach the Solid Secondary Standard (cap and insert) to the fluorometer. Adjust the Solid Secondary Standard to produce the same response as in step 1.
2. The Solid Secondary Standard's signal is now equivalent to the concentration value of the dye solution measured in step 1.

Note: Comprehensive information on dye trace measurements can be found at the following Turner Designs website:
<https://www.turnerdesigns.com/dye-fluorometer>

Use of the Solid Secondary Standard as a Stable Reference Check:

Solid Secondary Standard can be used as a stable reference check for all application with the exception of turbidity. It is stable and unless adjusted, it should give consistent readings. If you notice a drift in readings greater than $\pm 2.5\%$ from the initial value recorded, then we suggest recalibrating or contacting [technical support](#).

Care and Storage:

Solid Secondary Standards should be stored at room temperature (~20 degree C) when not in use and kept free of dust and moisture.

Special care must be taken with the UV Solid Secondary Standard P/N 2600-902 to ensure that it is not exposed to UV light for prolonged periods of time. This can result in degradation of the standard.

Ordering Information

Product	Part Number
Solid Secondary Standard Cap	2600-900
Visible Solid Secondary Standard	2600-901
UV Solid Secondary Standard	2600-902
<i>Solid Secondary Standard are not available for Turbidity sensors</i>	