

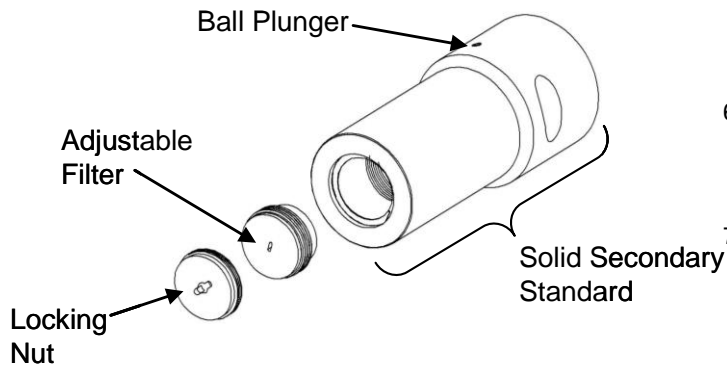
Introduction

The following information describes how to use the Plastic Cyclops Solid Secondary Standards:

- P/N 2100-908 *In Vivo* Chlorophyll, Rhodamine WT, Fluorescein, Phycocyanin, and Phycoerythrin
- P/N 2100-905 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 and/or check for loss in sensitivity.
- Provides a broad range of very stable fluorescent responses.
- Has an adjustment screw allowing users to set to a desired signal.

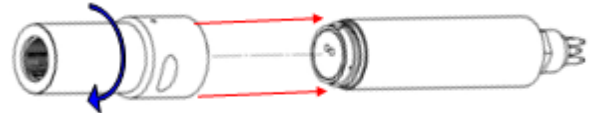


Specifications

Material	Delrin
Weight	65.9 g (0.145 lbs.)
Length	8.2 cm (3.23 inches)
Base Diameter	3.6 cm (1.42 inches)
A Solid Secondary Standard is not available for Turbidity Plastic Cyclops sensor.	

Installation

- 1) Align Solid Secondary Standard with Plastic Cyclops Sensor's optical head and snap on the Solid Standard.
- 2) Slightly rotate Solid Secondary Standard until it is set into position. *Note: you will feel/hear a click when the Ball Plunger seats into position.*



- 3) The Solid Secondary Standard's signal is now ready to be adjusted using the green screwdriver provided.



- 4) Unscrew the locking nut as far as it will go.
- 5) Insert the green screwdriver through the hole in the locking nut and rotate until it engages with the adjustment screw on the Adjustable Filter beneath the locking nut.
- 6) Rotate the Adjustable Filter to adjust the reading. Turning clockwise increases the signal and counterclockwise decreases the signal.
- 7) Once the desired reading has been obtained, the locking nut should be screwed down to hold the Adjustable Filter firmly in place.

Note: The response of every solid secondary standard is unique. Hence, a new correlation must be determined for every sensor.

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

1. Using your Cyclops Fluorometer, measure a sample containing algae and record the response and the gain values for that measurement.

2. Dry off the optical end of the Cyclops, attach the Solid Secondary Standard to the fluorometer, and adjust the Solid Secondary Standard to produce the same response in the same gain 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 value determined from step 3 and can be used in place of a liquid primary standard for future calibration of that specific Cyclops Fluorometer.

Care and Storage:

Solid Secondary Standards should be stored at room temperature (~20 degree C) in their case when not in use and kept free of dust and moisture. Special care must be taken with the UV Solid Secondary Standard P/N 2100-905 to ensure that it is not exposed to UV light for prolonged periods of time. This can result in degradation of the standard.

Use of the Solid Secondary Standard for Dye Tracing Applications:

The Solid Secondary Standard can also be used to check fluorometer stability when making dye concentration measurements. If necessary, the Solid Secondary Standard can be used to establish a new correlation voltage without using a calibration solution each time.

1. Using your Cyclops Fluorometer, measure a dye solution with known concentration and record the response as well as the gain values for that measurement.
2. Dry off the optical end of the Cyclops, attach the Solid Secondary Standard to the fluorometer, and adjust the Solid Secondary Standard to produce the same response in the same gain as in step 1.
3. The Solid Secondary Standard's signal is now equivalent to the concentration value of the dye solution used in step 1 and can be used in place of a liquid primary standard for future calibration of that specific Cyclops.

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