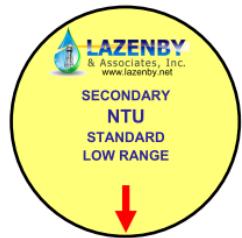


LIGHTHOUSE SOLID SECONDARY NTU Validation / Verification Standard



Lighthouse Solid Secondary Standard is a solid Secondary Validation Standard for turbidity, intended to be used as a quick & convenient “check” to determine whether a full Primary calibration is required prior to the next regularly scheduled Primary calibration of the turbidimeter. Designed for use with the HF scientific MTOL+, M100+, Micro TOL and Micro 100 seriesTurbidimeters, it can be used as often as needed and has no expiration date.



Assign a Validation / Verification Value immediately after each Primary Calibration

- 1) Perform a Primary Calibration of your turbidimeter(s) as described in operator's manual.
- 2) Enter the Serial Number of the **Lighthouse Solid Secondary Standard** used, the date, and the instrument identifier on a Log Sheet (Sample log sheet is on the back of this page).
- 3) Clean the measurement surface of the **Lighthouse Solid Secondary Standard** with the provided microfiber cloth (**Do not clean with window cleaner or alcohol**. Use only the microfiber cloth provided and distilled water if needed. Dry thoroughly if cleaning with distilled water).
- 4) a) For **process instruments** - Prior to use make sure to confirm to proper personnel that the validation process is being completed and that there may be variation in the reading on SCADA. Remove the Flow Head (it is not necessary to stop the flow), insert **Lighthouse Solid Secondary Standard** and align the index mark on the **Lighthouse Solid Secondary Standard** with the index mark on the top of the sensor enclosure (facing forward).
Consistency is key to repeatability.
b) For **laboratory instruments** - Insert **Lighthouse Solid Secondary Standard** and make sure the index mark on the top of the **Lighthouse Solid Secondary Standard** is facing directly forward. Consistency is key to repeatability.
- 5) Record the displayed value on a Log Sheet as the Assigned Value (see reverse for log sheet example). This is the value to be used for validation checks for this particular instrument until the next full Primary Calibration is performed.
- 6) Remove **Lighthouse Solid Secondary Standard** and replace the Flow Head (if validating a process instrument).
- 7) Return the **Lighthouse Solid Secondary Standard** to its protective case.
- 8) Calculate the +/-10% Pass Range for each instrument and enter the values in the Log Sheet. The Min. value will be the Assigned Value – 10%. The Max value will be the assigned Value + 10%.
- 9) Repeat steps 1-8 for EACH INSTRUMENT that will require periodic validation. (Variations are possible between meters).

Performing Validation / Verification Checks between Primary Calibrations

- 1) For the specific instrument being validated, enter the Date and Operator on the Log Sheet.
- 2) Clean the measurement surface of the **Lighthouse Solid Secondary Standard** with the provided microfiber cloth (**Do not clean with window cleaner or alcohol** use only the microfiber cloth wet the standard with distilled water if necessary). Assure that the Serial Number on the **Lighthouse Solid Secondary Standard** being used matches the Serial Number of the standard that was used to establish the Assigned Value for the instrument being checked.
- 3) a) For **process instruments** - Prior to validating make sure to confirm to proper personnel that the validation process is being completed and that there may be variation in the reading on SCADA. Remove the Flow Head, insert **Lighthouse Solid Secondary Standard** and align the index mark on the **Lighthouse Solid Secondary Standard** with the index mark on the top of the sensor enclosure (facing forward).
- 4) b) For **laboratory instruments** - Insert **Lighthouse Solid Secondary Standard** and make sure the index mark on the top of the **Lighthouse Solid Secondary Standard** is facing directly forward.
- 4) Record the obtained value on the Log Sheet as the Current Reading.
- 5) Remove **Lighthouse Solid Secondary Standard** and replace the Flow Head immediately (if validating a process instrument).
- 6) Return the **Lighthouse Solid Secondary Standard** to its protective case.
- 7) Indicate on the Log Sheet whether the instrument Passed or Failed (see next step for explanation and instruction).
- 8) If the Current Reading obtained in step 4 falls within the +/-10% Min./Max Pass Range for the specific instrument, indicate on the Log Sheet that the instrument has “Passed”. If the reading falls outside the +/- 10% Min./Max Pass Range for this specific instrument, then indicate on the Log Sheet that the instrument has “Failed”, and perform a full Primary Calibration as recommended in EPA Method 180.1. Following this, re-establish a new Assigned Value for the instrument by following the Assigning a Validation Value procedure described above.
- 9) Repeat steps 1-8 for EACH INSTRUMENT that will require periodic validation.

Each **Lighthouse Solid Secondary Standard** has been individually tested and should perform well for many years with proper care. It is important to protect it from abrasives, harsh solvents and chemicals. It should be cleaned with the provided microfiber cloth only. If necessary pure water may be used to aid in the cleaning (DO NOT USE WINDOW CLEANER). Protect your investment by keeping the standard in the provided storage case when not in use.

WARRANTY: The **Lighthouse Solid Secondary Standard** is warranted against defects in material and workmanship for a period of one (1) year from the date of manufacture.

Utility: _____ Address: _____ Contact: _____ Phone: _____

Primary Calibration	Date / Time	Value / Lot Number	Value / Lot Number	Value / Lot Number	Solid Standard Assigned Value	Notes
	HF scientific ProCal	MM/DD/YY XX:xx	10 NTU Lot No	1 NTU Lot No	0.02 NTU Lot No	0.26 NTU
Primary Calibration	Date / Time	Value / Lot Number	Value / Lot Number	Value / Lot Number	Solid Standard Assigned Value	Notes