



INSTRUCTIONS FOR THE AMCO HF TURBIDITY KIT

BEFORE STARTING CALIBRATION:

- Always use clean glassware and handle cuvettes so there are no fingerprints in the area where light is passing through the sample. GFS recommends using alcohol to clean the outside of the cuvettes.
- Make sure that the index marks on the cuvettes and turbidimeter are aligned before reading. (See attached instructions on Indexing Cuvettes.)
- Insure that the turbidimeter has been turned on for at least 1/2 to 1 hour before performing measurements.
- When opening bottles of AMCO CLEAR™ standards, lift the seal off completely.
- Do not pour used Primary Standard back into the bottle. This contaminates the contents, since the used standard has been in contact with impurities in the sample cell.
- Allow the standard to reach room temperature before use to alleviate fogging of the cuvette (Standards should be stored at room temperature anyway).
- If you encounter difficulties with calibrations, allow the sample to sit, loosely capped with clean cap, until all air bubbles have settled out, or gently tap sides of cuvette to release the air bubbles, then take another reading. If a sonic bath is available, it is very effective at removing trapped air from the sample.
- When placing any standards in the well, always use the light shield to cover the well in order to keep out the ambient light. When not in use, the cap will prevent dust from entering the well.



CALIBRATION WITH THE AMCO PRIMARY STANDARD:

- Select a clean scratch-free cuvette. (This same cuvette should be used both for checking your Sealed Secondary Standard with Primary Standards and for your regular turbidity test samples.)
- Set the machine on the 0-1 range and place the 0.02 NTU standard into the well. Using the **Reference Adjust Knob**, turn it until the machine reads 0.02 NTU.
- Remove the 0.02 NTU standard and change the range to 0-10. Place the 8.0 NTU standard into the well and adjust the **Lo Linearity Knob** until the machine reads 8.0 NTU (+/- 0.1).
- Remove the 8.0 NTU standard and change the range to 0-100. Place the 80 NTU standard into the well and adjust the **Span Knob** until the machine reads 80 NTU (+/- 1). Or use the 800 NTU in the 1000 range if desired.
- To verify the machine is calibrated correctly, check each standard in its corresponding range to see that they read correctly. For example, a reference standard 0.8 NTU should read 0.8 +/- 0.1 in the 0-1 range. If not, repeat the above calibration procedure until no further adjustments are necessary.

DETERMINING THE TRUE VALUE OF YOUR SEALED SECONDARY STANDARD AFTER CALIBRATING WITH THE AMCO PRIMARY STANDARD

- Clean your Sealed Secondary Standard using the same technique as you used to clean the sampling cuvette.
- Place the Sealed Standard, appropriate to the range, into the instrument as well.
- Rotate the Sealed Standard vial until it reads its marked value (or to its closest reading). Index the vial.
- Log the reading, then write the value on one of the enclosed stickers, and place it on the Sealed Standard vial. This is the **true value** of your Sealed Standard.



CALIBRATION WITH THE AMCO SEALED SECONDARY STANDARD:

- Align the Sealed Standard in the indexed position.

Calibrate your instrument to the **true value** of your Sealed Standard. e.g. If your 18.00 NTU Sealed Standard read 18.10 NTU when calibrated to the primary, you will calibrate your instrument to 18.10 NTU with the Sealed Standard indexed and in position.

NOTES:

- Differences in Primary vs. Sealed Standard readings are due to the inherent differences in the glassware, not in the actual standard value.
- **DO NOT** expect all ranges to be calibrated if you only calibrate one range. You must calibrate each range with the appropriate NTU value standard.
- Remember; Sealed Secondary Standards are “Reference Standards” only, and must be used in conjunction with a Primary Standard to meet EPA requirements.

INDEXING PROCEDURE

- Index the cuvette, by either etching a mark or using a pen mark on the glass. If the turbidimeter doesn't already have a reference mark, create one, again by etching or using a Sharpie pen.
- Place the cuvette in the turbidimeter in the exact position for each reading by matching the marks on the cuvette and the rim of the cuvette holder. (i.e. Align the cuvette with the cap, and then the cap with the instrument reference point.)
- Once the cuvette becomes scratched or pitted, replace it with a new cuvette following the same procedure as above.
- NOTE: Indexing assures accuracy of the turbidity readings by holding constant the error factor introduced from the cuvette glass quality. Cuvettes do not read the same from one point on the cuvette to another. NTU values may vary considerably.

