



# U VF-500D CALIBRATION INSTRUCTIONS

Using Sitelab CAL-061M-500D for **Polycyclic Aromatic Hydrocarbons**

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CAL-061M-500D-SOPV1

## Equipment Required

### Sitelab PAH Calibration Kit Part No. CAL-061M-500D



Use to calibrate for Polycyclic Aromatic Hydrocarbons, detects Heavy PAHs in the C14 to C40 carbon range. Includes:

- 3 Calibration standards
- 2 Reference standards
- 20 Cuvettes + other supplies



**WARNING!** This product contains methanol solvent (highly flammable, CAS #67-56-2). Use in ventilated area, handle with care, store at room temperature.

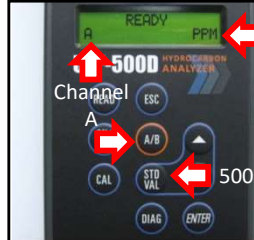


**U VF-500D, Part No. 50200** with 8mm Cuvette Adapter & Solvent Dispenser Squirt Bottle

#### Other Items Needed:

- 8mm Round Glass Cuvettes, Part No. 50957, 400/Pack
- Methanol, Use "HPLC" Grade

## 1. Set up Analyzer



The U VF-500D displays PPM units, used for TPH analysis.

Disregard PPM, enter PAH STD value in PPB!

Press the ON/OFF button to turn on. The READY screen – or home screen - appears and should display the "A" Channel is selected. If not, press the A/B button to switch from B to A. Next, press the STD VAL button to check and confirm the PAH standard's concentration is set to 500 ppb (shown as 500 ppm). If not, use the arrow keys to adjust the standard value and then press ENTER. Once the standard value and Channel are set, press the CAL button to begin the calibration process. Press ESC button to abort the calibration at any time.

## 2. Use Methanol for Solvent Blank

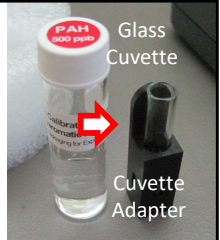


Solvent Dispenser Squirt Bottle

Fill Cuvette ½ Full with Methanol

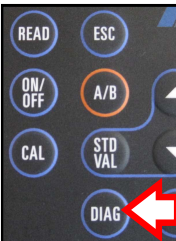
Always use clean solvent to blank or "zero" the analyzer during the calibration process. Use the same solvent used to extract samples. Fill the solvent dispenser bottle with methanol and squirt into a glass cuvette about half full. Wipe the outside glass with a tissue wipe to remove any liquids or fingerprints. Place the blank into the cuvette adapter, insert into the analyzer and press the ENTER button when ready to test the blank. The analyzer will read the blank for a few moments, settle and then prompt you to the next step. Remove the blank from the cuvette adapter and empty contents into a waste jar.

## 3. Use the 500 ppb PAH Standard



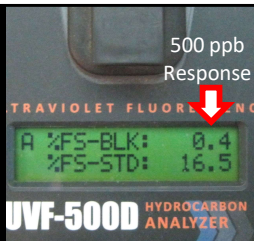
Pour the 500 ppb PAH Calibration Standard into a new cuvette about half full. Or use a pipette to transfer contents (less messy). Wipe the outside glass clean with a tissue wipe, place into the cuvette holder, insert into analyzer and press the ENTER button. The analyzer will read the standard for a few moments and will prompt you to press ENTER again when calibration is complete. When finished, remove the standard from the cuvette adapter. Add a plug cap to cuvette to save and reuse later or pour contents back into the vial, the standards are reusable. Throw out cuvette or rinse cuvette with hexane to clean and reuse.

## Check & Record Calibration Diagnostic Data



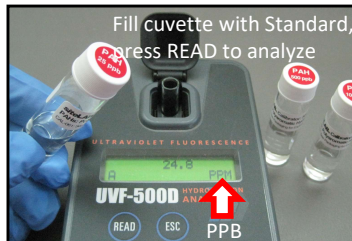
Record the %FS values of the blank and the standard.

%FS values should be close/similar each time the analyzer is calibrated to PAHs.



After calibrating the analyzer, press the "DIAG" button to record the percent fluorescence scale (%FS or voltage) for the blank and the standard. These sensitivity values are very important and should be recorded. The %FS-BLK value should be below 1 and close to zero. The %FS-STD value using the Standard should be in the 12 to 20 range (each analyzer varies) and should produce similar %FS-STD values each time its used, within 10%, no more than 20% RPD. If not, a new standard should be used. See the Certificate of Analysis for details. Once the U VF-500D is calibrated, it's stable for very long periods of time. The detector does not drift. Only recalibrate if necessary.

## Check Standards for Quality Control



#### Acceptance Criteria

- 500 ppb Standard: Reads 450 to 550 ppb
- 100 ppb Standard: Reads 80 to 120 ppb
- 25 ppb Standard: Reads 20 to 30 ppb

Periodically check analyzer for accuracy and precision by testing the 500 ppb Standard. Readings should be close to 500 ppb. Press READ button again to check repeatability. Next, test the 100 ppb and 25 ppb standards to confirm the analyzer is linear at the lower end of the curve. Readings should be close, within 10%, no more than 20% off, for best performance. If readings are outside the acceptance criteria, test new, fresh standards. Avoid testing standards past their 6-month expiration date. Test a solvent blank too to confirm the methanol is clean. This should be done on a more frequent basis, especially when new solvent is used.

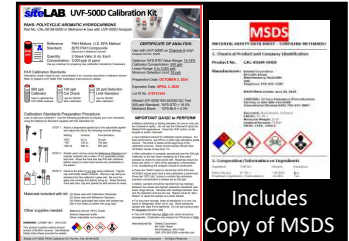
## Solid Standard Available



The U VF-500D includes a 100 ppm TPH Solid Standard. This device reads the same as the 100 ppm TPH standard used to factory calibrate the analyzer.

The Adjustable Solid Standard can be used and tuned to read "500 ppb", after the analyzer is calibrated to BaP using the 500 ppb Standard. Use the device for extra QC test or to calibrate. Once tightened, readings are always stable.

## Certificate of Analysis



Sitelab's PAHs Calibration Kit includes a Certificate of Analysis. This document has important information about the product, including the preparation date, expiration date (6 months) and lot ID number. Instructions are provided to make new calibration standards using two Reference Standards provided. Use of a micro pipette is required.