



UVF-500D CALIBRATION INSTRUCTIONS

Using Sitelab CAL-BAP-COALTAR Standard for Testing **Benzo[a]Pyrene**

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CAL-BAP-COALTAR-500D-SOPV1

Equipment Required

Sitelab BaP Coal Tar Calibration Standard Part No. CAL-BAP-COALTAR



Use for measuring Benzo[a]Pyrene in reclaimed asphalts and other coal tar contaminants.

Includes 2 Standards, 30 mL each:

- 50 ppb Calibration Standard
- 5 ppb QC Check Standard
- Ready to use, supplied in methanol



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

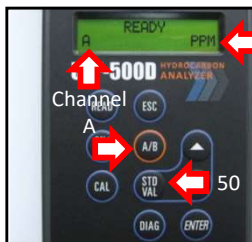


UVF-500D, Part No. 50200 with 8mm Cuvette Adapter & Solvent Dispenser Squirrt Bottle

Other Items Needed:

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

1. Set up Analyzer



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

Disregard PPM, enter BaP 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 BaP standard's concentration is set to 50 ppb (shown as 50 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

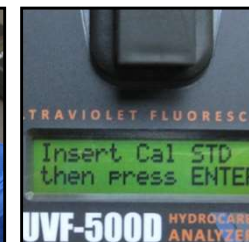


Solvent Dispenser Squirrt Bottle

Fill Cuvette ½ Full with Methanol

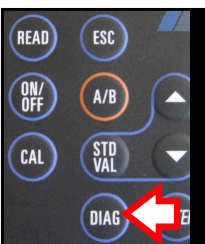
Always use clean solvent to blank or "zero" the analyzer during the calibration process. Use the same solvent used to extract samples. Fill the solvent dispenser bottle with methanol and squirt into a glass cuvette about half full. Wipe the outside glass with a tissue wipe to remove any liquids or fingerprints. 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, empty contents into a waste jar or add a plug cap to cuvette to use later.

3. Use the 50 ppb BaP Standard



Pour the 50 ppb BaP 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 empty contents in a waste jar and discard cuvette. Avoid pouring contents back into the vial unless the calibration standard is fine.

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 BaP.

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 24 to 40 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 using CAL-BAP-COALTAR should be used.

Once the UUVF-500D is calibrated, it's stable for very long periods of time. The detector does not drift. Only recalibrate if necessary.

Perform Quality Control Tests



Fill cuvette with Standard, press READ to analyze

Acceptance Criteria

- 50 ppb Standard: Reads 45 to 55 ppb
- 5 ppb Standard: Reads 4 to 6 ppb
- Methanol Check: Reads 0 or <0.5 ppb

Periodically check the analyzer for accuracy and precision by testing the 50 ppb Standard as if it were a sample. Readings should be close to 50 ppb. Press READ button again to check repeatability. Next, test the 5 ppb QC Check Standard 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 blank to confirm the methanol is clean. This should be done on a more frequent basis, especially when new solvent is used.

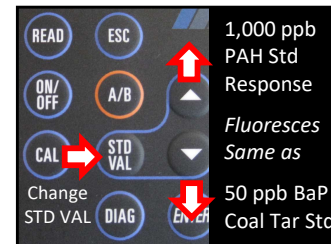
Solid Standard Available



The UUVF-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 "50 ppb", after the analyzer is calibrated to BaP using the 50 ppb Standard. Use the device for QC test or to calibrate analyzer. Once tightened, readings are always stable.

Need to Test PAHs?



The UUVF-500D can measure PAHs, using Sitelab PAH calibration kit CAL-061M-500D (EPA 16 PAHs) without the need to recalibrate. Press the STD VAL button and use the arrow keys to increase the concentration from 50 to 1000. PAH sample readings will be about 20 times higher compared to BaP sample readings. The DIAG %FS values do not change.