



UVF-500D Dirty/Oily Water Test Procedures using HEXANE SOLVENT

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SOIL EXTRACTION KIT: PART NO. EXTR010-20-HEX

Equipment Required

- UVF-500D, Part No. 50200, solvent dispenser bottle, adjustable pipette, tissue wipes and manual.
- Test samples using the TPH factory calibration or TPH-Oil Calibration Kit, Part No. CAL-056H-500D or use your own oil standard for analysis.
- 20 Sample Extraction Kit - Water Product No. EXTR010-20-HEX Use for sample analysis. Solvent not included. Use HPLC or other high grade methanol solvent.
- Use a cup to collect solvent waste from rinsing cuvettes. Use tissue wipes to clean cuvette or spills.

WARNING! Hexane is highly flammable. Dispose solvent waste properly.

Set up Analyzer

For TPH in water, use Channel A only!

Set STD Value to 100 ppm

Press the ON/OFF button to turn the instrument on. Press the A/B button to select the Channel. Use Channel A for TPH in water applications. Press the STD/VAL button to check and confirm the TPH standard's concentration is set to 100 ppm. If not, then use the arrow keys to adjust the standard value and then press ENTER. Only use the 8 mm cuvettes for soil analysis.

1. Extract Sample in Solvent

Add Water to Sample Extraction Vial (15 mL Line)

Add 15 mL Solvent to Vial (30 mL Line)

Shake water sample first prior to use and then quickly pour 15 mL of water into a sample extraction vial. The vials have 5 mL graduations. Fill the solvent dispenser bottle with hexane solvent. Squirt 15 mL of hexane into the vial until it reaches the 30 mL line. This creates a 1-to-1 or 1X Extract.

Hexane is a non-polar solvent, it floats on top of water. Tighten the cap and shake extraction vial for two minutes. The oil will dissolve into the solvent.

2. Filter Extract

Hexane Floats on Top of Water

Let Extract sit for a few minutes afterward, allowing time for the solvent and water to separate. Remove the cap, insert a syringe into the vial and suck up 3 to 5 mL from the surface into the syringe. Attach a filter to the syringe and dispense contents into a glass solvent extract vial. Label filtered extract vial with ID and 1X.

3. Prepare Dilution

Use the filtered Extract, micropipette and graduated plastic test tube to prepare dilutions for analysis. We recommend starting with a 20X Dilution first. Rinse and clean the test tube, glass cuvette and pipette tip with solvent to reuse, as needed. See examples below:

Pipette	Add Solvent	Dilution
50 uL	to 5 mL line	= 100X
100 uL	to 5 mL line	= 50X
250 uL	to 5 mL line	= 20X
250 uL x2	to 5 mL line	= 10X

4. Test Sample and Record Results

Pipette, Test Tube with Dilution, Glass Cuvette, Cuvette Adapter

Fill a glass cuvette about half full with the dilution made in Step 3. Pour dilution from test tube into cuvette or use the pipette to transfer dilution into cuvette (less messy). Wipe the outside glass clean using a tissue wipe to remove any liquids or fingerprints. Be careful not to spill cuvette into the cuvette adapter.

Example: Sitelab TPH: Cal Range = 0-100 ppm

Reading = "23.8 ppm" x 20X Dilution

Final Concentration = 476 ppm (mg/L)

Insert cuvette with dilution into the cuvette adapter, place into the sample well, press the READ button and wait for the concentration to be displayed. Press the READ button again to check repeatability. Readings are shown in PPM units (or mg/L for water). If using Sitelab TPH, avoid readings near zero or below the 5 ppm detection limit. Readings above 100 ppm should be analyzed at higher dilutions. Empty contents from test tube when finished. Save Extract for future use. Add plug cap to cuvette to save dilution, if needed.

Multiply reading by dilution tested for final result.

Check for Quenching

Prepare and test higher or lower dilutions

- 20X Dilution = 23.8 ppm
- 10X Dilution = 47.0 ppm
- Good, Linear! 476 vs. 470

"Quenching" can occur when the detector is swamped by too many hydrocarbons or organic interferences, producing low, non linear concentrations. Test the sample at multiple dilutions to confirm results are linear and accurate. Rinse and clean test tube and pipette tip with solvent to reuse. Use the 1X Extract to make higher or lower dilutions.

Testing Clean Extracts?

Tissue Wipe, Hexane, Water, Cuvette

Pour extract into cuvette or use pipette to transfer extract. Avoid water from bottom of vial!

Sample Extracts that are clear in color after settling do not need to be filtered and may not require dilution.

To test the Extract, carefully pour the top solvent layer from the extraction vial into a glass cuvette, about 1/2 full, and use a tissue wipe to remove any liquids, spills or fingerprints. Place into the cuvette adapter, insert into the analyzer and press the READ button. Record and report the concentration shown (no multiplier used).

Quality Control Tests

Test Your Solvent, Test Calibration Standard

Fill a cuvette with hexane and test a blank to make sure the solvent is clean. Readings should be 0 ppm (or close to zero). When using Sitelab TPH, test the TPH Solid Standard to check for drift and confirm the analyzer is properly calibrated. Readings should be close to 100 ppm (within 10%). If readings are greater than 20% off, then recalibrate the UVF-500D.