ENVIRONMENTAL EXPRESS

Using UltraFlow™ Filters and Filter Assemblies

Hexane Extractable Material (HEM/Oil and Grease) from Water
EPA Method 1664

Matrix:	Water
Solid Phase Extraction Disk:	Environmental Express UltraFlow™ 47mm and 90mm disk
Safety and Protective Equipment:	Standard laboratory safety procedures should be followed at all times. Goggles and face shield, lab coat/apron and gloves should be worn during the extraction procedure. The entire extraction process should be carried out under a fume hood.
Sample Preparation:	Adjust sample pH to <2.0 with HCl or H_2SO_4.
Cleaning/Conditioning:	Mount the UltraFlow™ Filter or Filter Assembly, turn the vacuum on and wash the disk with a small amount of hexane. Turn the vacuum off and add 10mL (47mm) or 30mL (90mm) of hexane. Allow the disk to soak for up to one minute and turn on the vacuum. With the vacuum on, rinse the disk one more time with approximately 10mL/30mL of hexane. Allow the disk to dry under vacuum for one minute. With the vacuum off, condition the disk by adding enough methanol to cover the disk (approximately 10mL for a 47mm disk or 30mL for a 90mm disk). Apply a small vacuum and draw a small amount of methanol through the disk. Turn off the vacuum and allow the disk to soak for one minute. Turn on the vacuum and draw off most of the remaining methanol. **Do not allow the disk to dry.** If the disk does become dry at any point, repeat the methanol conditioning step before adding the sample. While under vacuum add several mLs of DI water to replace the methanol. It is important to replace all of the methanol with DI water and to not let the disk go dry. **Allowing the sample to come into contact with the methanol is a violation of method 1664.**
Sample Extraction:	Pour the sample (pH adjusted to <2.0) under full vacuum. If a sample has a high suspended solid component, filter as much sample as possible before adding any sediment/solids. Allow the sample to filter completely. Air dry the disk for 15-20 minutes under full vacuum. Longer drying times may be used.
Sample Elution:	Ensure that a suitable collection vial is in place. Rinse the empty sample container with 20mL of hexane (35mL for 90mm disk)*. Transfer the hexane to the disk using a disposable pipette. Carefully apply vacuum to draw a few drops of hexane through the disk; then stop the vacuum. Allow the sample to soak for approximately 1 minute then pull the remaining hexane through the disk. Repeat this step making sure to wash down the sides of the reservoir twice using 10mL of hexane per rinse.
Water Removal:	The combined sample eluent must be passed through a minimum of 5g sodium sulfate. The extract should then be transferred to a clean, pre-weighed container which will then be heated appropriately for analysis.
Analytical Procedure:	Gravimetric Analysis

Please note that the unique UltraFlow™ filter design with the additional pre-filter layer may require the use of more hexane for a complete extraction than is commonly used on an SPE disk with no pre-filter layer.

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