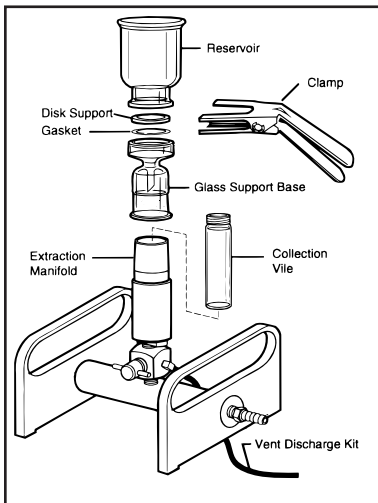




Section 3: Product Characteristics

Thickness:	5.0 mm (nominal)
pH:	Stable between 2 and 12. Range may be extended by short contact times.

Handling and Storage

Disks should be stored at room temperature in a dessicator due to the adsorptive properties of the disk.

Recommended Usage

Vacuum apparatus is available from a number of different suppliers and includes in-line filter holders and manifolds. Buchner funnels are not recommended.

Section 4: Customer Contact Information

Global Customer and Technical Service

Phone 1-800-541-6593

Fax 1-610-932-4158

Website www.cdsanalytical.com/Empore

⚠ WARNING To reduce the risks associated with improper disposal and/or handling of contaminants in used cards: Take appropriate steps to assess the disposal required for any altered product or materials added to the product. (Alteration of the product or the addition of other materials to the product may require different disposal methods.)

Warranty Information

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Empore™

Extraction Disks for Environmental Analysis

(Oil and Grease Analysis for EPA#1664)
with Octadecyl (C18) bonded silica for use with
47 mm and 90 mm extraction apparatus

Instructions for Use

CDS Empore™ Extraction Disks provide an efficient alternative to liquid/liquid extraction for sample preparation. A patented CDS process is used to entrap adsorbent particles into a non-polar membrane to create a mechanically stable sorbent disk. Oil and grease extraction disks can be used to isolate and concentrate hydrocarbons from water samples for final analysis. Advantages of Empore Extraction Disks include reduced solvent usage and rapid sample flow characteristics.

The enclosed instructions for use are general guidelines for the extraction of hexane extractable materials (HEM) from water and are based upon the EPA Method 1664 – "N-Hexane Extractable Materials (HEM) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM) by Extraction and Gravimetry (Oil and Grease and Total Petroleum Hydrocarbons)". For general extractions not dependent on EPA guidelines, the sample volume, solvent type, pH adjustment and conditioning may be changed to adapt to specific methods as needed.

Section:

1. Extraction Method with Oil and Grease Disk
2. Empore Manifold System Setup
3. Product Characteristics
4. Customer Contact Information

Visit our website at www.CDSAnalytical.com/Empore

Section 1: Extraction Method with Oil and Grease Disk

Step A: Sample Preparation

- Adjust the sample pH to 2 with 6N HCl or H₂SO₄.
- If the sample contains a high concentration of suspended solids, allow the particles to settle (overnight if necessary). Carefully decant the liquid portion of the sample onto the disk prior to pouring the solids.

Note: Samples containing a high concentration of suspended solids may require the use of a 90 mm disk and filtration apparatus.

Step B: Disk Conditioning

Proper disk conditioning is critical for a successful extraction. Conditioning prepares the sorbent to interact efficiently with the sample matrix. **FAILURE TO CONDITION THE EXTRACTION DISK PROPERLY WILL RESULT IN ERRATIC AND LOW RECOVERIES.**

1. Wash the disk (47 mm) and the reservoir sides with 20 mL n-hexane (30 mL for 90 mm). Use enough solvent to cover the top of the disk.
2. Apply vacuum and draw the hexane through the disk.
3. Repeat steps 1 and 2 for optimum blank recoveries.
4. Allow the disk to dry under vacuum for 1 minute after the hexane has been drawn through the disk.
5. Add 10 mL (47 mm disk) methanol (30 mL for 90 mm) to the reservoir. Apply vacuum and draw a few drops of methanol through the disk, leaving enough methanol to cover the surface of the disk. Turn off the vacuum to allow the disk to soak for 60 seconds.
6. Reagent grade water, 10 mL for 47 mm disk and 30 mL for 90 mm disk, may be added to the reservoir prior to adding the sample.
7. Remove the waste collection vial and discard the solvents according to local, state and/or federal regulations.

The Oil and Grease Disk is now conditioned and ready for sample extraction.

Note: If the disk should become dry while conditioning with methanol, repeat steps 5,6 and 7.

Step C: Sample Extraction

1. Decant the water sample or EPA standard into the reservoir. Immediately apply vacuum and pass the sample through the disk as quickly as vacuum will allow. **Note:** Decant as much liquid as possible before adding the sediment into the reservoir. Do not allow the disk to become dry before adding the sediment.
2. Rinse sample bottle thoroughly with reagent grade water.
3. Drain as much water from the sample bottle as possible. After extraction is complete, allow disk to air dry under vacuum for a maximum of 5 minutes.

Note: Flow rate is dependent on vacuum and solids content of the sample. However, recoveries are not affected by the flow rate.

Step D: Sample Elution

1. Remove the filtration assembly and insert a clean glass vial for eluate collection. Place the tip of the filtration base into the collection vessel by setting the assembly back into place.
2. Rinse the sides of the original sample container with 10 mL of hexane.
3. Transfer the hexane from the sample container to the disk using a disposable glass pipette. As the hexane is transferred to the disk, be sure to allow it to wash down the sides of the reservoir.
4. Carefully apply vacuum to pull a few drops of hexane through the disk, and then stop the vacuum.
5. Allow the remaining hexane to soak into the disk for approximately 2 minutes. Then slowly draw the remaining solvent through the disk under vacuum to remove residual hexane.
6. Repeat steps 2-5 using a second aliquot of hexane.
7. Wash the sides of the glass reservoir using another aliquot of 10 mL hexane. Apply vacuum and draw the entire volume of hexane through the disk.
8. Allow the disk to dry for approximately 5 minutes, and then turn off the vacuum.

Step E: Eluate Drying

1. Place glass wool into the bottom of a small funnel and add 5 g sodium sulfate.
2. Obtain a clean collection vial or weighing pan and record its weight. **Note:** Wear gloves when handling the preweighed collection vials as oils from the skin may be transferred to the vial and affect results.
3. Pour or pipette the eluate onto the sodium sulfate and collect into the preweighed collection vial.
4. Rinse the sides of the collection vial with 5 mL hexane and add to the sodium sulfate.
5. Rinse the sodium sulfate with 5 mL aliquot hexane, allowing all the solvent to run through the sodium sulfate and into the collection vial.

Step F: Gravimetric Analysis

1. Evaporate the hexane from the collection vial until a constant weight is obtained.
2. Weigh the collection vial, subtract the initial weight of the vial, and calculate the quantity of oil and grease residue present in units of mg/mL.

Section 2: Empore™ Manifold System Setup

Due to the high flow characteristics of the CDS Oil and Grease Disk, it is critical that the disk be carefully centered over the filter support. When placing the funnel reservoir on the disk, press down firmly while attaching the clamp to assure a tight seal. **DISK MUST BE USED WITH THE DIMPLED SURFACE FACING DOWN.**

- Center the extraction disk on the base of the filtration apparatus and clamp the reservoir in place on top of the disk. If using glassware clamps, gently squeeze the jaws of the clamps to assure proper sealing. The disk can be used with either a single station or multiple station manifold.
- Place a waste collection vial (at least 40 mL volume) into the manifold assembly, turn on the vacuum system and adjust vacuum to 20-25 inches Hg (0.68 - 0.85 bar).