Empore™

SDB-RPS Reverse Phase Sulfonated Extraction Disks for Environmental Analysis

For use with 47 mm and 90 mm extraction apparatus

Instructions for Use

Note: Empore Sample Preparation Products are intended for solid phase extraction during scientific research only. These products are not intended for use in medical devices or in assessment and treatment of clinical patients.

General Product Characteristics

Description:

Empore SDB-RPS (styrenedivinylbenzene-reverse phase sulfonate) Disks are a unique product for the solid phase extraction of polar and nonpolar analytes from aqueous samples. A proprietary process is used to entrap adsorbent particles into a matrix of inert PTFE to create a mechanically stable sorbent disk.

Formulation:

90% or greater adsorbent particle
10% or less PTFE

Product Characteristics:

Thickness: 0.5 mm ± 0.05 mm
SPE Flow Rate: < 10 min/L DI H_2O @ 25°C @ 20 in. Hg (47 mm disk)
Solvents: Compatible with all organic solvents
pH: Stable between 1 and 14.

Suggested Application Procedures

General: Water Analysis

Empore™ Extraction Disks provide an efficient alternative to liquid/liquid extraction for sample preparation. A proprietary process is used to entrap adsorbent particles into a matrix of inert PTFE to create a mechanically stable sorbent disk. The disks can be used for purification and concentration of analytes for analysis. Advantages of Empore Extraction Disks include rapid filtration, reduced solvent usage and a reduction of analytical interferences.

The enclosed instructions are general guidelines for use. Sample volume, solvent type and conditioning may be changed to adapt to specific methods and analytes as needed.

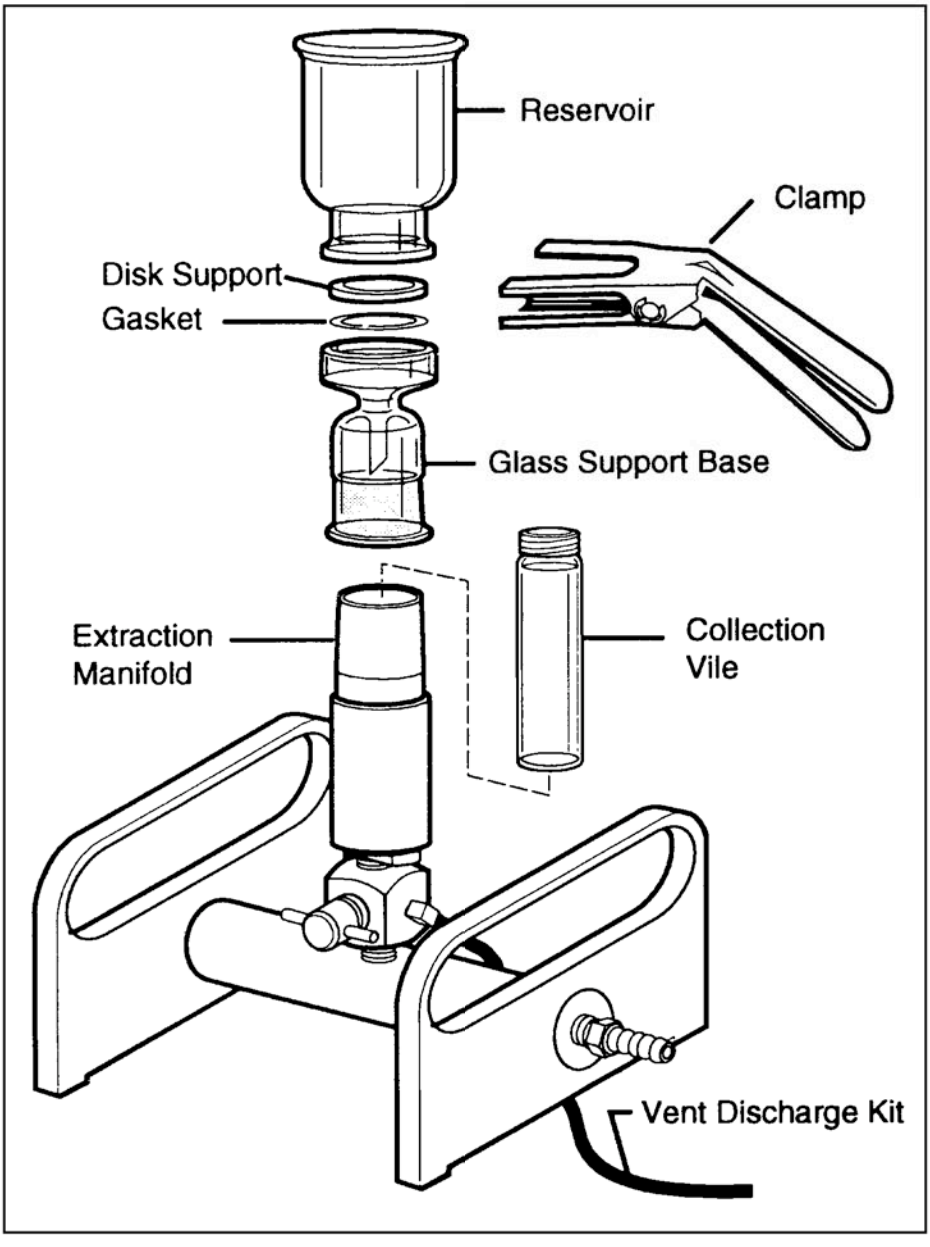
Extraction Equipment

- 47 mm or 90 mm Empore Extraction Disks.
- 47 mm or 90 mm glass filtration apparatus.
- Vacuum source.

Sample Preparation

- Microbiological growth can be retarded by lowering sample pH to 2.
- Filter Aid 400 (Cat. # FA400) and/or prefiltration may be helpful if the sample contains excessive suspended solids.

Suggested Vacuum Apparatus



Note: Suggested solvent volumes will vary according to the disk diameter and the amount of Filter Aid 400 filter material. A general guide for solvent volumes is to completely cover the disk and bed of filter material, such that 2 - 3 mm of solvent is above the surface. Repeat with second aliquot.

Extraction Disk Conditioning

Disk conditioning is critical for a successful extraction. Conditioning provides a good interface between the sorbent and the sample matrix. FAILURE TO CONDITION THE EXTRACTION DISKS PROPERLY WILL RESULT IN ERRATIC AND LOW RECOVERY.

1. Center the extraction disk on the base of the filtration apparatus and clamp the reservoir on the top of the disk.*
2. Wash the disk with 10 mL of acetone and apply vacuum to dry the disk.
3. Wash the disk with 10 mL isopropanol. Apply vacuum and dry the disk.
4. Add 10 mL methanol to the disk. Apply vacuum and pull approximately 1 mL through the disk. Vent the vacuum and allow the disk to soak for 30 seconds.
5. Apply vacuum and draw methanol through the disk leaving a small amount of methanol on surface.
6. Add 10 mL reagent grade water to the reservoir and draw the water through the disk until the water surface just covers the disk surface.

Note: When using solvents or other chemicals, be sure to read and follow the manufacturer's precautions and directions for use.

If disk becomes dry while conditioning with methanol or water, repeat steps 4 through 6.

* Place a vial in the vacuum apparatus to collect and dispose of wash and conditioning solvents. Remove vial prior to sample extraction.

Sample Extraction

- Pour the sample into the reservoir and apply vacuum. Flow rate is dependent on vacuum source and solids content of the sample. However, recoveries are not affected by flow rate.
- After sample extraction is complete, remove residual water from the disk by applying vacuum to the disk for approximately 5-20 minutes.

Sample Elution

Two elutions with 10 mL solvent are recommended.

- Place tip of filter base into the collection vessel (see diagram).
- Add 10 mL elution solvent to sample container carefully rinsing the sides. Transfer solvent from sample container to reservoir with a pipet washing the walls of the reservoir in the process.
- Apply vacuum and pull approximately 1 mL elution solvent through the disk. Vent the vacuum and allow the disk to soak 30 seconds before reapplying vacuum to dry the disk.
- Repeat this process with a second aliquot of eluting solvent.
- The sulfonic acid groups may require elution solvents containing pH modifiers or buffers such as ammonium hydroxide to elute some cationic analytes.

General Information

Handling and Storage

The disks may be handled in the same manner as any filter membrane. Because of the adsorptive properties of the disk, desiccator storage away from laboratory air at room temperature is recommended.

Recommended Usage

Empore™ Extraction Disks are used in a manner similar to membrane filters. Filtration equipment is available from a number of different suppliers and include in-line filter holders, glass filtration apparatus, and multiple filtration manifolds. Buchner funnels are not recommended.

Applications

Empore™ SDB-RPS (styrenedivinylbenzene-reverse phase sulfonate) Extraction Disks are used for extraction of polar and nonpolarorganic compounds from water samples or soil extracts.

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