



General Information

Handling and Storage

The disks may be handled in the same manner as any sorbent membrane. The disk should be stored in a dry place at room temperature.

Suggested Usage

CDS Empore™ Strontium Rad Disks are available with a diameter of 47 mm. Disks fit into existing single or multiple station vacuum manifolds and into 50 mm planchets for use with proportional counters.

Disposal

Dispose of used disks according to standard radiochemical procedures and regulations. Unused disks may be disposed of in accordance with standard procedures for laboratory waste.

For full details on test procedure and possible interferences, consult CDS Test Method SR-95 "Rapid Determination of Radiostrontium using Empore Strontium Rad Disks." In press. DOE Methods for Evaluating Environmental and Waste Management Samples. (DOE Compendium DOE/EM-0089T).

More information

Technical Service and Sales Assistance:

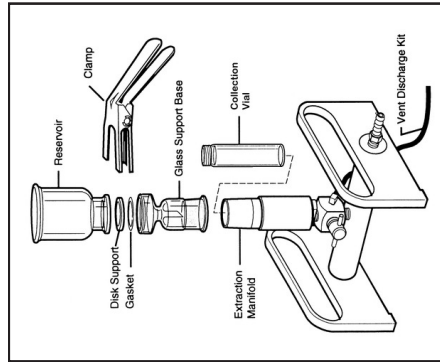
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Suggested Vacuum Apparatus



Important Notice to Purchaser:

All statements, technical information and recommendations contained in this literature are based on tests conducted with CDS approved equipment and are believed to be reliable. The accuracy of component tolerances and test data are not guaranteed. THE USER ASSUMES ALL LIABILITY FOR ANY UNEXPECTED RESULTS, DAMAGES OR INJURIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. The seller's and manufacturer's only obligation will be to replace the quantity of the product proved to be defective. Neither the seller nor CDS will be liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. CDS 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.



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34-8715-4069-5



Empore™ Strontium Rad Disks

with selective separation and counting of
strontium isotopes

Instructions for Use

General Product Characteristics

Description

CDS Empore™ Strontium Rad Disks are unique products that effectively replace conventional radiochemical sample preparation methods that use wet chemistry or packed columns. Empore™ Strontium Rad Disks combine CDS Empore Membrane technology with selective sorbent particles. The adsorbent particles contained in the disk allow selective adsorption of strontium. Radiostrontium may be counted directly from the surface of the disk.

Composition

90% ± 2% sorbent particles
10% ± 2% PTFE

Product Characteristics

Diameter: 47 mm (nominal)

Thickness: 0.5 mm ± 0.05 mm

Solvents: Compatible with all organic solvents

pH: Stable between 0-12

Flowrate: 4-10 mm/L DI H₂O @ 25°C @ 20 in Hg (0.68 bar)

Disk Identification

Unique disk identification number
Element specificity: Sr

CDS 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. CDS does not warrant the use of these products for any application outside the products' intended use.





Safety Information

⚠WARNING: Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠WARNING:

To reduce the risks associated with environmental contamination, handling radioactive materials or false negative results:

- Read, understand and follow all recommendations in the product MSDS and Instructions for Use.

To reduce the risks associated with radioactive materials:

- Always wear the proper PPE (Personal Protection Equipment) when handling used product.

To reduce the risks associated with environmental contamination:

- Dispose of used disks according to standard radiochemical procedures and regulations. Unused disks may be disposed of in accordance with standard procedure for laboratory waste.

Scope and Application

General: Water Analysis

This disk is intended for determination of radioactive strontium in aqueous samples. Using CDS Empore™ Strontium Rad Disks, sample processing and counting source preparation may be condensed into a single step. This preparation takes approximately 20 min. for a one liter sample and is amenable to batch processing. Total Sr content should not exceed 3 mg to obtain quantitative recovery. For typical one liter samples, Sr retention is greater than 97%. The method detection limit depends on sample volume and counting protocol but



Extraction Equipment

- 47 mm Empore Strontium Rad Disks
- 47 mm single or multiple station vacuum manifold (see diagram)
- Beta detector - proportional counter or liquid scintillation counter
- 50 mm planchets or scintillation vials

Reagents

- Nitric acid, concentrated and 2M
- Methanol

Sample Preparation

- Acidify the sample to 2M with concentrated nitric acid.
- If visible solids are present in the sample, prefilter through a 0.45 µm filter if exclusion is desired.

Extraction 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. Center the Empore Strontium Rad Disk on the base of the filtration apparatus and clamp the reservoir in place on top of the disk.



2. Condition the disk by adding 10 mL** of methanol to the disk. Apply vacuum and pull approximately 1 mL through the disk. Vent the vacuum and allow the disk to soak for 60 seconds.

3. Apply vacuum and slowly draw the methanol through the disk, leaving 3-5 mm above the surface of the disk.

4. Wash the disk immediately with 20 mL of 2M nitric acid under low vacuum. Flow rate should be no more than 50 mL/min. Leave 3-5 mm of liquid on the surface of the disk.

Note: If disk should become dry while conditioning with methanol or acid, repeat the steps above.

Sample Extraction

- Pour the sample into the reservoir and apply low vacuum. The flow rate should not exceed 50 mL/min. Do not allow the disk to dry.
- Rinse the disk with 20 mL of 2M nitric acid at the same flow rate. The end time of this rinse is recorded as the start of the Y90 ingrowth.
- Excessive air should not be drawn through the membrane since airborne radon decay products could pose radiometric interferences if the disk are counted the same day.

Note: The disk should not be allowed to dry during the conditioning or the sample processing steps.

Counting Options

- Disks may be counted by either proportional or scintillation counting. The instrument type, counting times and frequency of counts are dictated by the isotope(s) of interest and the data quality objectives. Radioactive ingrowth and decay corrections must be applied.
- For use with a scintillation counter, place disk (before disk dries) into a vial containing scintillation cocktail.

