



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™ Technetium 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.

More information

Technical Service and Sales Assistance:

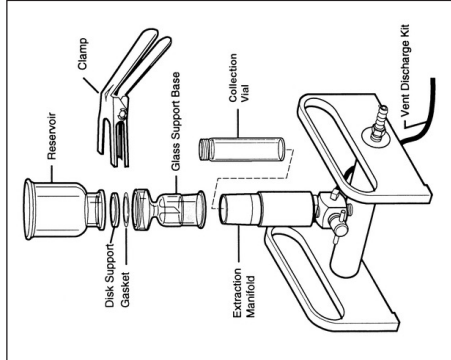
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Suggested Vacuum Apparatus



Important Notice to Purchaser:

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Empore™ Technetium Rad Disks

*with GD-1 sorbent for selective separation
and counting of technetium*

Instructions for Use

General Product Characteristics

Description

CDS Empore™ Technetium Rad Disks are unique products that effectively replace conventional radiochemical sample preparation methods that use wet chemistry or packed columns. Empore Technetium Rad Disks combine CDS Empore Membrane technology with a selective GD-1 sorbent. The GD-1 sorbent particles enmeshed in the disk allow selective adsorption of technetium. Technetium may be counted directly from the surface of the disk in a gas proportional counter or the disk may be placed directly into a cocktail for liquid scintillation counting.

Formulation

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
Flow rate: 4-10 min/L DI H₂O @ 25°C @ 20 in Hg (0.68 bar)

Disk Identification

Unique disk identification number
Element specificity: Tc

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

CDS Empore™ Technetium Rad Disks are intended for determination of radioactive technetium in aqueous samples. By using these 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. The method detection limit depends on sample volume and counting protocol but generally will be less than 1 pCi/L.



Method Overview

A water sample is passed through an Empore Technetium Rad Disk with no prior preparation of the sample or the disk. The loaded disk is dried and counted directly with a gas proportional counter or placed wet in a scintillation vial and counted with a liquid scintillation counter.

Interferences

Most ions found in drinking water, surface water and ground water do not interfere with technetium adsorption. Nitrate levels up to 1000 mg/L do not interfere.

Safety

No significant safety concerns are associated with this method other than the normal precautions needed for handling radioactive materials.

Apparatus and Materials

- 47 mm CDS Empore™ Technetium Rad Disks
- 47 mm single or multiple station vacuum manifold with filter support (see diagram)
- Beta detector (low background gas flow proportional counter or liquid scintillation counter)
- 50 mm planchets or liquid scintillation vials with scintillation cocktail

Reagents

No reagents are required for this procedure.

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Sample Collection Preservation and Handling

No special collection, preservation or handling steps are necessary for this procedure. No "wetting" of the disk with methanol or other alcohol is necessary. Samples should not be acidified with nitric acid because of possible interference by nitrate ions.

Disk Loading Procedures

- Measure the sample aliquot. Depending on the activity present and the analytical detection limit required, this may vary from 100 mL or less to several liters.
- If there is particulate matter present in the sample, use a prefilter to remove any potential beta emitting interfering solids.
- Mount an Empore Technetium Rad Disk in the filter support.
- Pull the sample aliquot through the disk (20 in Hg (0.68 bar) vacuum). No adjustment of pH or wetting of the disk is necessary.

Counting Options

Disks may be counted by either proportional or scintillation counting.

For use with a scintillation counter, place disk into a vial containing scintillation cocktail.

For use with a gas proportional counter, the loaded disk must be dried completely and placed in a 70°C oven for 10 minutes.

For full details on test procedure and possible interferences, consult CDS Test Method TC-196 "Rapid Determination of Technetium-99 in Water using Empore™ Technetium Rad Disks."

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