

Zeta Plus™ 1MDS Series Filters

Filter Discs & Cartridges

Zeta Plus 1MDS filter media is designated by the United States Environmental Protection Agency (Information Collection Rule, EPA/600/R-95/178, April 1996) to determine the level of total culturable virus in drinking water.

Zeta Plus 1MDS filter media discs and cartridges provide a convenient and cost-effective method for capturing and concentrating waterborne enteric viruses. Equally useful in the laboratory and in the field, Zeta Plus 1MDS products are suitable for sampling large water sources such as lakes, rivers, pools, and sanitation effluent.

Zeta Plus 1MDS media uses electrokinetic adsorption to capture viruses. In this system, the unique electropositive charge of the media allows sample testing at the prevalent pH, eliminating all post-collection sample preparation such as chemical modification. Zeta Plus 1MDS also greatly reduces precipitation and related filter clogging caused by salts added to water sources.

Experiments involving adsorption rate, sample volume, and virus viability have demonstrated the efficacy of Zeta Plus 1MDS products. Trials show that the medium is capable of processing large samples at high flow rates and that adsorbed virus remains viable up to 300 hours, eliminating the need for immediate sample processing.

Performance

Virus Elution

Adsorbed viruses can be recovered effectively from Zeta Plus 1MDS media using an alkaline buffered proteaceous solution, such as a 1.5% beef extract in an aqueous glycerine solution at pH 9.5.

Stability

It is important that the concentration media have little or no effect on the virus viability, because it is not always convenient to elute collected virus in the field. When Zeta Plus 1MDS discs are stored at 4°C, polio virus adsorbed to the media retain their infectious nature for up to 300 hours (12.5 days) with little appreciable loss (Graph 1).

Features & Benefits

Efficient capture & concentration of waterborne viruses.

- Allows sample testing at prevalent pH.

Adsorbed virus remains viable for up to 300 hours.

- Eliminates need for immediate sample preparation

Media available in cartridges & discs.

- Cost-effective and convenient use in the laboratory and in the field.



Applications

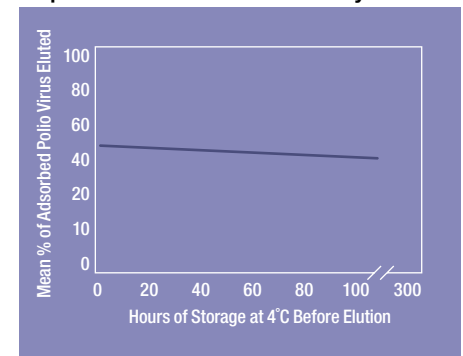
Isolation of viruses in samples from:

Drinking Water - Surface or ground supplies

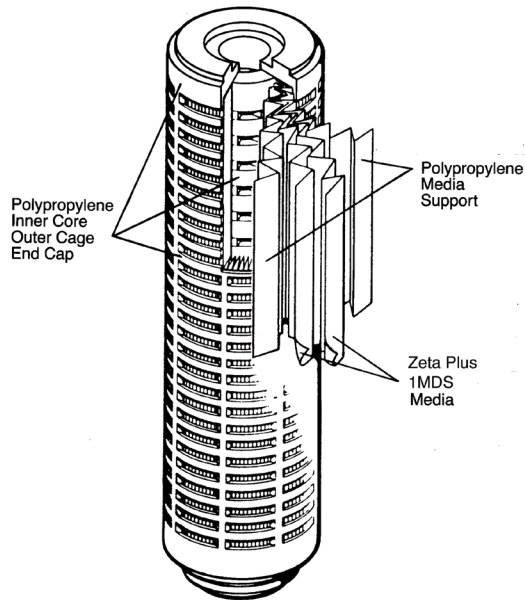
Recreational Water - Pools, lakes, and rivers

Waste Water - Sewage or industrial waste, including reclaimed water for crop irrigation

Graph 1: Adsorbed Polio Virus Viability over Time



Zeta Plus™ 1MDS Ordering Guide



Cartridges

Basic Cartridge Number	Nominal Cartridge Length	Media Formulation
45144	01 - 9 3/4 (24.8 cm) Nitrile Gasket	1MDS
	02 - 10 (25.4 cm) Nitrile Gasket	

Discs

Basic Disc Number	Disc Size	Media Formulation
64085	01 - 90 mm	1MDS
	02 - 47 mm	
	03 - 142 mm	
	04 - 293 mm	

Construction

Zeta Plus 1MDS is an electropositive, charge-modified, glass and cellulose medium. Cartridges are constructed using two layers of pleated medium and are available in 10 inch (25.4 cm) and 9.75 inch (24.8 cm) double open-ended (flat nitrile gasket) configurations. Each cartridge contains approximately 4.2 ft² (0.39 m²) of media and the cartridge may be sterilized using chemical or heat methods (autoclave to 121°C or 1 hour). When using Zeta Plus 1MDS discs, it is recommended that two layers be used for optimal adsorption. As physical properties of different virus types and environmental conditions vary, it is recommended that the optimum system for the use of 1MDS be established for each laboratory. For more information, contact your local CUNO distributor.

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