



NanoCeram[®] Virus Samplers

Virus Sampler Filter Cartridges

Features and Benefits

Every NanoCeram[®] Virus Sampler uses Argonide's patented electropositive non-woven filter media in a pleated cartridge. The family of NanoCeram[®] Virus Samplers is capable of meeting the rigid testing methodology for virus sampling as specified by the EPA (see *USEPA Methods of Virology, Chapter 14, April 2001*). The VS2.5-5 is supplied in cases containing individually induction-sealed polybags which have been sterilized and certified as such by the TAMU Electron Beam Facility in College Station, Texas.

In order to meet the autoclaving protocol within the EPA's Methods, Argonide has developed high temperature versions of its Virus Sampler in both a 5" model and a larger capacity 10" Virus Sampler model. These are VS2.5-5(HT) and VS2.5-10(HT) respectively and each are fully autoclavable.

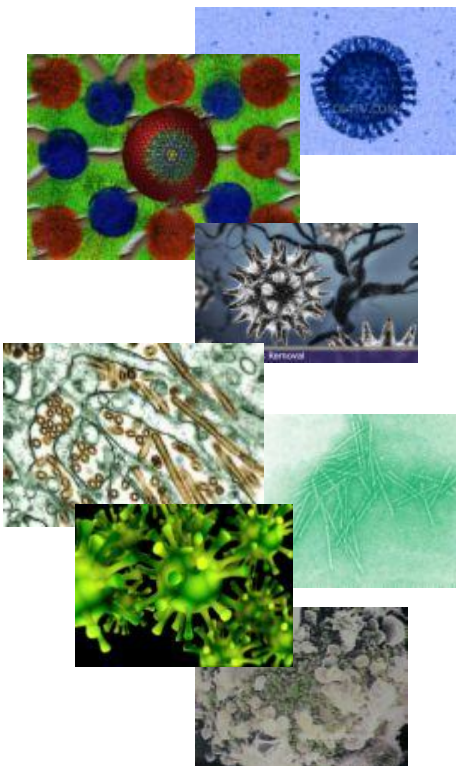
- Virus Recovery: 80 - 99% (based on data for MS2 adsorption)
- Reduced eluent & sample size as the filter is 50% the size of other virus sampler cartridges (Part Nos. VS2.5-5 & VS2.5-5(HT) only)
- Effective in fresh, brackish or salt waters
- Operating Temperature Range: 39 - 135° F (4 - 57°C)
- Silt Density Index (SDI): $\leq 0.8 \pm 0.1$ • Effective pH Range: 5 - 10
- Max. Pressure: 70 psi (4.83 bar)
- Turbidity Reduction: < 0.01 NTU until terminal pressure drop (35psi)
- Low ΔP : < 1.5psi @ 4gpm (Part No. P2.5-10HT)
- Flow Rate: 5mL/cm²/min @ 4gpm (Part No. VS2.5-10HT)
- Dirt Holding Capacity (DHC): 572 mg/in² (A2 Fine Test Dust)

Purpose

The focus of the VS2.5-5 cartridge's development was in response to the EPA's desire for a low cost virus sampler. Target parameters included a cartridge capable of sampling 500 liters of river water, with high turbidity, in a period of 1-2 hours. The NanoCeram[®] VS2.5-5 cartridge was tested by a continuous stream containing 250 NTU of 3 μ m APS A2 fine test dust at 5.5 LPM (1.5 GPM). At 90 minutes it had filtered 119g of dust from 508 liters while maintaining <0.01 NTU in the effluent (99.996% retention) at which point the test was terminated.

Applications

Municipal (Potable) Water Testing
 Ground Water Testing
 Laboratory





NanoCeram[®] Virus Sampler Series:

Part No.	Diameter x Length	Temperature Range *	Maximum Flow Rate **	Maximum Capacity ***	Effective Surface Area	Active Surface Area
VS2.5-5	2.625" x 4.875" (6.67 x 12.38 cm)	39 - 135° F (4 - 57°C)	5 gpm (19 lpm)	13,000 gal. (50,000 liters)	200 in ² (1,290 cm ²)	8.8 x 10 ⁶ inches (5.7 x 10 ⁷ cm)
VS2.5-5(HT)	2.625" x 4.875" (6.67 x 12.38 cm)	39 - 190° F (4 - 88°C)	5 gpm (19 lpm)	13,000 gal. (50,000 liters)	200 in ² (1,290 cm ²)	8.8 x 10 ⁶ inches (5.7 x 10 ⁷ cm)
VS2.5-10(HT)	2.625" x 9.875" (6.67 x 12.38 cm)	39 - 190° F (4 - 88°C)	10 gpm (38 lpm)	26,000 gal. (100,000 liters)	400 in ² (2,600 cm ²)	1.8 x 10 ⁷ inches (1.4 x 10 ⁸ cm)

* Temperature Range is an operational range. The Hi-Temp cartridges are fully autoclavable.

** Peak Flow Rate based on initial flow using new filter cartridge and clean water during laboratory testing.

*** Maximum Capacity is dependent on water quality.

Retention of MS2 by 2.5" x 10" NanoCeram Pleated Filter Cartridge:

Test point, L	MS2, PFU ^a /ml		
	Influent PFU/ml	LRV ^b	% Removal
Start	6.0•10 ⁴	>4.5	>99.997
2000	7.0•10 ⁴	>4.5	>99.997
4000	4.5•10 ⁴	>4.3	>99.996
6000	2.7•10 ⁵	2.6	99.8
8000	1.2•10 ⁶	1.6	97.5

Notes:

- Plaque Forming Units
- Logarithm Removal Value.

The results above indicate that in a clean (non-chlorinated) water environment, a single cartridge will have MS2 (bacteriophage with an average diameter of 27 - 34 nanometers) capacity greater than 4 LRV (99.99%) up to 4000 liters in volume.