



Minncare[®] Cold Sterilant

Calculating Volume Required for Distribution Systems

To determine the amount of Minncare required for the disinfection of a water distribution system first determine the holdup water volume in the high purity water system. This includes storage tanks, piping, U.V. systems and filter housings. Add to the estimated storage volume the estimated volume of water in the pipe. Estimate the volume of water in the pipe using the following table:

SCHEDULE 80 PVC PIPE SIZE	GALLONS PER 1 FOOT OF PIPE LENGTH
.5 INCH	.0122 GALLONS
.75 INCH	.0225 GALLONS
1 INCH	.0374 GALLONS
1.25 INCH	.0666 GALLONS
1.5 INCH	.0918 GALLONS
2 INCH	.1534 GALLONS
2.5 INCH	.2202 GALLONS
3 INCH	.3432 GALLONS

Example: A high purity water system with a 500 gallon storage tank and 1500 feet of 1.5 inch PVC piping.

Pipe volume in gallons = 1500 feet X .0918 gallons = 137.7 gallons in 1500 feet of pipe.

U.V. System + Filter housings = 12 gallons

Total system volume = 500 gallons + 137.7 gallons + 12 gallons = 649.7 gallons.

Minncare Cold Sterilant required for a 1% concentration = 649.7 x 0.01 = 6.5 gallons of Minncare.

Please note: You do not need to fill the entire volume of the storage tank if the system is sanitized on a routine schedule.

If you sanitize infrequently, we recommend using the entire tank volume, or use a non-particle shedding brush for scrubbing to ensure that Minncare Cold Sterilant solution contacts the entire tank surface as the system recirculates. Alternatively, a spray nozzle (spray ball) on the system return may be used for dispersing Minncare Cold Sterilant onto the tank surface. You may drain the tank to just above the low level cut-out of the distribution pumps. Use this lower volume to calculate the amount of Minncare Cold Sterilant required.

Time Required for Sanitization

Minncare Cold Sterilant will achieve a 6 log reduction of bacteria contamination with 36 minutes contact time. The length of time required to break down any biofilms will vary depending on the time from the last system disinfection. The Filtration Technologies Group (FTG) of Minntech Corporation, recommends a minimum of one hour contact time in the system; however, longer exposure times will not cause any harm to the piping system. If the system has a build-up of biofilm, a 4 hour minimum to 12 hour maximum contact time is suggested.

Adding Minncare and Setting Equipment

The calculated amount of Minncare Cold Sterilant can be pumped or poured directly into storage tanks. Safety equipment such as rubber gloves, an apron, and eye protection should be used. During the recirculation of the Minncare solution any resin beds must be off-line. In addition, all ultraviolet sterilizers should be shut off because the U.V. light causes Minncare Cold Sterilant to break down. U.V. lamps should be returned to service when rinsing Minncare Cold Sterilant from the system.

Post filters may need to be removed and then replaced after Minncare Cold Sterilant is rinsed from the system depending on the filter characteristics. Some characteristics include:

- Length of time in service
- Pressure loss across the filters
- Compatibility with Minncare

If a filter is compatible with Minncare Cold Sterilant (for example, the FiberFlo® hollow fiber cartridge filter) it can be sanitized in-line. Some installations require new filters to be sanitized before installation into the system.

Testing for Minncare

The Minncare® 1% Test Strips will indicate the presence of a 1% Minncare Cold Sterilant solution at any test port in the system. The Minncare® Residual Test Strips colormetrically indicate Minncare Cold Sterilant chemical levels at 100, 30, 10, 1 and 0 PPM. These residual test strips allow you to determine when the Minncare Cold Sterilant has been thoroughly rinsed out of the system.

Rinsing the Minncare Solution

You may drain your storage tank to the waste neutralization system or rinse directly to the drain with an acid neutralizer. Minncare Cold Sterilant has an approximate pH of 3.5 when used at 1%. Verify local regulations regarding the acceptable discharge pH level. Refill the make-up storage tank and system with freshly treated water. Recirculate fresh water and bleed the return water to the waste neutralization system. Restart the U.V. system to assist in the breakdown and removal of Minncare Cold Sterilant. Test each water system outlet with Minncare residual strips. When the test strip indicates the presence of less than one ppm of Minncare Cold Sterilant, resin beds can be put on-line and filters reinstalled. The sanitization procedure is then complete and the system is ready for use.

NOTE:

High purity water systems vary in their designs and associated distribution loops. Please contact your FTG sales representative or inhouse technical support specialist for questions or application assistance by calling toll-free, 1-800-328-3345.

Visit our web site at:

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