



PRIVATE DRINKING WATER IN CONNECTICUT

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Effective Against: small particles and suspended solids such as ferric iron, clay, silt and sand, and some pathogens such as bacteria and viruses, and colloids (suspended matter).

Not Effective Against: any dissolved contaminants such as nitrates, dissolved iron, sodium, and volatile organic compounds (VOCs).

How Microfiltration Works



Microfiltration is a process that removes small amounts of suspended material from water. These filters are not intended for large suspended material loads such as a sand separator, screen and rapid sand filter, or other treatment devices used in large public water systems. Micro filters function in two general modes, surface and depth.

Surface or screen filters remove the particles at or very near the filter surface. They function very much like a screen; particles of a certain size and larger are retained at the surface while smaller ones move through the openings.

Depth filters have a thick filter medium. Particles are retained throughout the thick filter mat. Depth filters have a gradation in the size of the filter media so the largest particles are held at or near the filter surface, while progressively smaller particles are captured deeper in the filter where the filter media becomes smaller.

Types of Filters

There are many different types of filters used in these units. They differ in design, cost, and effectiveness. Before purchasing a system, verify that the treatment systems you are purchasing has been tested and certified by a third party to ensure manufacturer's claims. See the section on Product Certification at the end of this factsheet.

The size of the filter openings is rated in two ways. One typical method is to rate the average size particle that passes through the filter. This rating is used when the filter construction results in a range of opening sizes. Some particles larger than the size rating will pass through, but how much larger and how many particles is not stated. Likewise, the filter will retain some particles smaller than the average size rating.



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The other method is an absolute minimum size rating; no particles larger than the stated size may pass through the filter. This rating method is used when the filter construction results in precise opening sizes over a narrow range. Filters having an absolute size rating should be selected when control of specific-size particles is important such as the removal of bacteria. A surface-type filter is often used when an absolute rating is needed.

Microfilters are rated by the smallest particle they will remove, stated in microns. A micron is equal to one-millionth (10^{-6}) of a meter. The filter opening size to use depends upon the material to be removed by the filter. A smaller size will satisfy removal requirements but will require more frequent cleaning or replacement of the filter. If no very small material, viruses, or bacteria are present, the largest rating size that will serve the purpose will require the least maintenance. When used to pre-treat water for other water treatment devices, such as a reverse osmosis unit, follow the manufacturer's recommendations.

Maintenance

Regardless of the quality of the equipment purchased, it will not perform satisfactorily unless maintained in accordance with the manufacturer's recommendations for maintenance, cleaning, and part replacement. Keep a logbook to record equipment maintenance and repairs.

Microfiltration is normally part of the household plumbing system, unless it is part of another water treatment system. Some microfilters have self-contained throwaway elements, when the filter becomes clogged or full, the unit is replaced.

Microfiltration is generally a low-cost, safe treatment process that is nearly self-monitoring. When the filter becomes clogged, the pressure drop across the filter increases and water flow decreases. This indicates that the filter needs service. As long as the filter remains in place and there are no leaks through the filter or the seals, the process works safely with a little attention.

Other Considerations

Ensure the system you choose is installed and operated according to the manufacturer's instructions. After installation, retest both the raw water (prior to treatment) and the treated water at a state certified laboratory to ensure it is working properly and removing the contaminants. You should continue to test the quality of both the untreated and treated water annually. This annual test will also help you determine how well your treatment system is working and whether maintenance or replacement of components may be necessary.



Bacteria can grow on the filter, so it is important that you change the filter as necessary.

Consumers should inquire about the following before purchasing a microfiltration system:

- First, have your water tested to determine the contaminants present.
- Confirm that microfiltration is the effective treatment method and will remove the contaminant (s) present in your water.
- What type and size filter do you need? The filter size should be based on the contaminant (s) to be removed.
- What is the cost involved in installation and maintenance?
- Where can I purchase replacement filters?

Consumers should inquire about the following before purchasing a microfiltration system: (continued)

- Has the treatment system been tested and certified by a third party to ensure that it meets manufacturer's claims?
- Are there any special installation requirements that may add to the equipment cost, for instance, changes to your household plumbing?

Product Certification



NSF, International is a non-profit organization that sets performance standards for water treatment devices. Because companies can make unsubstantiated statements regarding product effectiveness, the consumer must evaluate test results of the device to determine if claims are realistic. Products that have been tested or evaluated by NSF and meet their minimum requirements are entitled to display the NSF listing mark on the products or in advertising literature for products. Manufacturers and models that meet NSF's standard are included in a listing published twice a year. For more information contact NSF at: 800-NSF-MARK or http://www.nsf.org/consumer/drinking_water/.

For more information please click on the following links:

EPA Office of Groundwater and Drinking Water

<http://www.epa.gov/ogwdw/>

EPA New England

<http://www.epa.gov/region01/>

Adapted from *Healthy Drinking Waters for Rhode Islanders*, University of Rhode Island Cooperative Extension, April 2003.