

Does your water smell funny or cause unsightly bathtub rings? Is it high in nitrates? There are many types of home water treatment systems on the market and each helps specific problems.

If your water is supplied by a public water system, your water is required to meet state and federal standards for various health related problems. To find out the results for your water, contact your supplier and ask for a copy of the "Consumer Confidence Report."

If you have a private well, it is **your** responsibility to have it tested for health and non-health related problems. Tests commonly run for health purposes are: bacteria, nitrates and fluorides.

There may be substances in your water that affect the taste, color, odor or hardness, but are **not** a threat to health. Lab tests may help you discover what is causing the changes to your water.

Problem	Cause	Possible Solution
Yellow/reddish water or stains on fixtures	Iron	Chlorination Sand Filter Water Softener
Black stains, greasy feeling	Manganese	See above
Soap doesn't lather well; rings in fixtures; dingy laundry, cloudy film or spots on dishes	Hard Water	Water Softener
Fishy, musty or earthy smell	Decaying organic materials	Activated Carbon Filter
Rotten egg smell	Hydrogen Sulfide	Chlorination
Nitrates	Excess fertilizer, human and animal waste	Reverse Osmosis Distillation

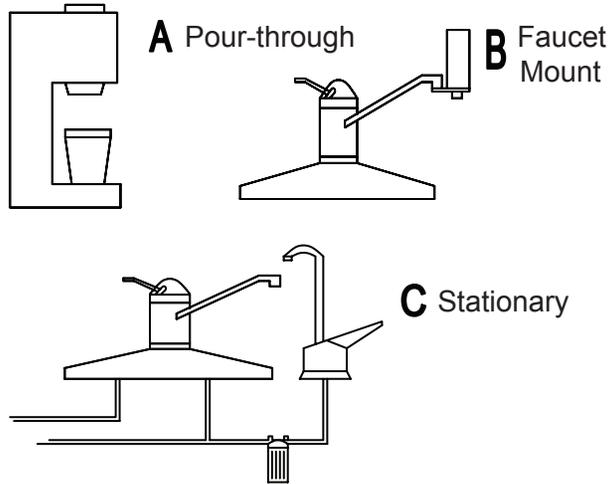
Once you identify the problem, you will need to choose the best method to rectify the problem.

Common Water Treatment Devices

Activated carbon filters are commonly used in households because they are effective and affordable. They are made from activated carbon which has small pores that absorb impurities present in the water.

Carbon filters also remove organic material from the water that bacteria feed on. Carbon filters need to be changed on a regular basis. In order for these filters to perform properly, the water needs to maintain a contact time with the activated charcoal. Filters that do not allow enough contact time will not remove the taste or odor of the water.

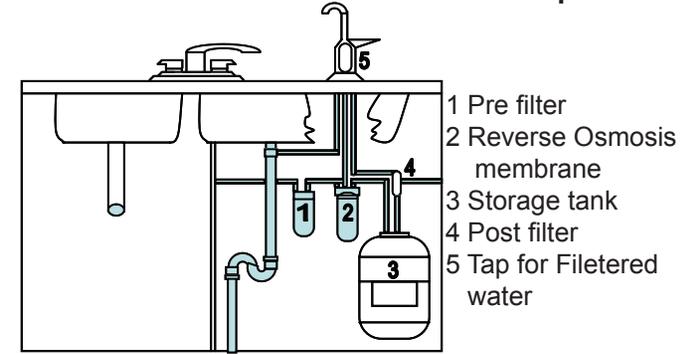
Carbon filtering devices:



Reverse osmosis filters use a special membrane with very small pores to remove impurities from the water. They require in-line installation and a pre-filter to remove dirt and sediment. They also have a backwash system to prevent buildup of contaminants on the membrane.

There is a large amount of reject water (about 75%) produced for each gallon of treated water. Therefore, the household total water use will be higher. This filter is usually used only on water used for drinking and cooking.

Installed Reverse Osmosis Filter Example:



Distillation. This unit heats water until it forms steam. When water becomes steam, the contaminants in the water are left behind. The steam then cools and condenses to form pure water in a separate storage container. The contaminants are periodically flushed from the unit.

Distillers remove inorganic compounds, such as lead and nitrates, and some organic compounds. They also disinfect the water through the boiling process. These units may be found on the countertop, attached to the wall, or on a cart.

Disadvantages to this system are high energy use and cost, the heat produced during its use, the loss of beneficial minerals from the water, and possibly flat tasting water. Also, care must be taken to avoid bacterial contamination of the storage container.

Ion Exchange/Water Softener. Water softeners are the best known example of ion exchange systems. These systems work by exchanging a compound in the water for a chemical on a filter resin. Calcium and magnesium, which make the water hard, are exchanged for sodium ions attached to the resin surface. Once all the sodium ions have been replaced by the calcium and magnesium ions, the system must be recharged by flushing the system with high amounts of sodium. This creates a great deal of waste water that is discharged to the sewer or septic system. Ion exchange systems have been developed to

remove other chemicals, however recharging the resins is more difficult.

Where does the “Rotten Egg” Smell in My Water Come From?

Hydrogen sulfide is the cause of the “rotten egg” smell in drinking water. It is a gas that is produced as a result of several different natural processes. The decay of organic matter is a common cause. However, in surface and ground water supplies, the presence of harmless sulfate-reducing bacteria may also be the cause.

Hydrogen sulfide can be responsible for tarnished silverware and yellow or black stains on kitchen or bathroom fixtures. Coffee, tea and other beverages made with water containing hydrogen sulfide may be discolored, and the water can change the appearance and taste of cooked foods.

Removal of Sulfate from Water

In order to properly treat your water for sulfate, you need know the amount of sulfate found in your water. This requires an on-site test of the water as the sulfate rapidly evaporates. Chlorination, activated carbon filters, aeration, and sulfur blasters are some of the methods available. The treatment method will depend on the amount of sulfate in the water. Contact your local water purifier and filter equipment dealer for more information.

If you believe the source of your sulfate odor is from bacteria, shock chlorination of the entire water system, including storage, hot water tanks, and distribution lines, is recommended to kill the bacteria. (See our fact sheet, “Shock Chlorination of a Well”). If this method does not eliminate the smell, contact a local water purifier from the yellow pages.

Water Testing

Your water will still need to be tested from time to time to ensure that your home water treatment system is working properly. Disease causing bacteria cannot be seen or smelled and the only way to find their presence in your drinking water is to test. Testing can be done by a number of local labs. Check the yellow pages of the telephone book under “laboratories” and make sure they are certified by the state health department.

The Benton-Franklin Health District also has a laboratory that is able to run a variety of water tests.

Benton-Franklin Health District
7102 W. Okanogan Place
Kennewick, WA 99336
509-460-4206

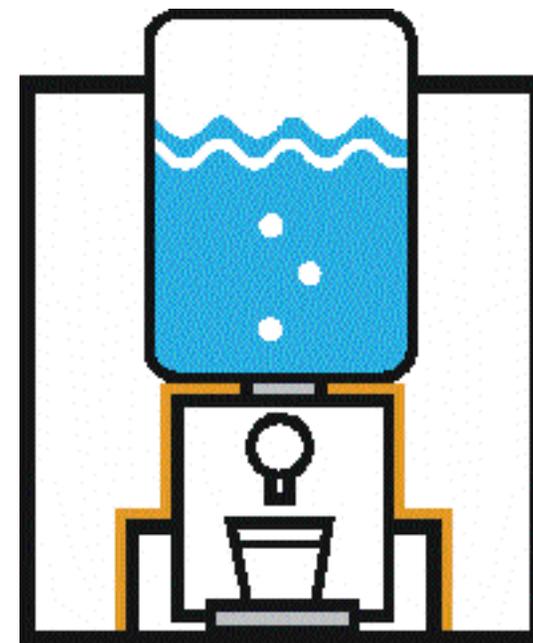
For more information or advice:

Benton-Franklin Health District
Environmental Health Division
7102 W. Okanogan Place
Kennewick, WA 99336
509-460-4568
Website: <http://www.bfhd.wa.gov>

See: Hydrogen Sulfide Fact Sheet
Nitrates
Fluoride
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HOME WATER TREATMENT

home safety series



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