

Drinking Water Treatment and Conditioning

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Fact sheet

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Understanding Water Treatment and Conditioning

By treating or conditioning well or tap water, homeowners may be able to remove most contaminants with the potential of causing negative short- and long-term health problems.

In addition, nuisance problems such as water that stains or has a bad odor, taste, or hardness may be eliminated.

By talking to your water supplier, local health department, and water treatment equipment supplier, and testing your water for the appropriate contaminants, you should get a comprehensive picture of the quality of your drinking water. But before purchasing any water treatment devices, please consider the following suggestions.

Facts to Consider Before Treating Your Water

Many water supply problems can be controlled or eliminated by using a variety of drinking water treatment devices. Before proceeding with the selection process, several facts should be considered.

*** If a Maximum Contaminant Level (MCL) Is Exceeded, Consult Your Health Department.**

MCLs are health-based standards and you may be assuming additional risk if you continue to drink the water. Young children and infants are particularly susceptible. SMCLs are aesthetic standards.

*** Always Retest To Ensure You Have A Problem.**

It is always good practice to have your water retested to ensure accuracy in sampling and in the laboratory. The second test should be done by a different laboratory to confirm results.

*** Consult With A Water-Quality Expert And/Or Your Local Health Department.**

When you are certain you have a particular contamination problem, consult with a water-quality expert. These individuals may be familiar with the preferred treatment methods in your area. Recent and historical water data should be reviewed by an expert to determine which processes are appropriate. The local health official or DEP may also be consulted if uncertainties arise.

*** Consider Alternatives**

Availability and cost of public water supplies or other alternatives including deeper private wells should be considered. If the home unit is preferred, then consider the use of a whole-house, faucet, or line-bypass unit. Bottled water may also be an alternative.

When you have more than one water-quality problem, choosing a treatment device is more complex. Many times you cannot treat one problem without treating another first. In many cases, two problems can be eliminated with one treatment or the treatment method itself causes a problem.

*** Select Unit**

After choosing a treatment process, select a unit to install. Criteria for unit selection may include field experience, independent evaluations by the National Sanitation Foundation and the Water Quality Association, equipment safeguards, maintenance requirements, initial and ongoing costs, and warranties or performance guaranteed by the dealer.

*** Field Test**

Equipment reliability and performance can best be determined by field testing. Field data can help to determine a monitoring program.

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*** Purchase and Install**

Using reputable dealers, licensed plumbers, and certified installers should ensure that the device will perform according to specifications and warranties.

*** Monitor and Maintain**

Safe operation of a home treatment unit requires monitoring and maintenance by an independent third party. While the above approach costs money not typically included in the purchase and installation price, the consumer should receive a safer product if this approach is followed.

*** For More Information**

If you need more information about home water treatment technologies and devices, consult the references at the end of this sheet, write the Rutgers Cooperative Extension office in your county, or contact the NJDEP Bureau of Safe Drinking Water in Trenton.

References

Faust, S.D. "Water From Home Wells - Problems and Treatments, Circular 594-B." New Brunswick, NJ 08903: New Jersey Agricultural Experiment Station, Cook College, Rutgers University, 1974.

Schorr, P. "Point of Use Devices - Air Stripping, Activated Alumina, Reverse Osmosis, Activated Carbon, Distillation, Ion Exchange." NJDEPE-Division of Water Resources, CN 029, Trenton, NJ 08625, 1988.

Activated Carbon Filtration

Effective for:

Some Organic Chemicals Some Pesticides

Radon Gas Taste

Trihalomethanes Odor

Air Stripping

Effective for:

Some Volatile Organic Chemicals Hydrogen Sulfide

Iron (with filtration)

Bottled Water

Effective for:

A temporary solution to many Emergency water-quality problems situations

Aesthetic problems

Chlorinators

Effective for:

Bacteria (Coliforms) Microbiological contamination

Distillation

Effective for:

All Inorganic Chemicals, i.e., Sodium

Nitrates, Some Organic Chlorides

Chemicals

Ion Exchange

Effective for:

Hard Water (Water Softening) Calcium

Manganese Iron

Some Heavy Metals

Mechanical Filtration

Effective for:

Turbidity Sediment

Dirt Particulates

(Loose Scale)

Reverse Osmosis

Effective for:

Certain Inorganic Chemicals Dissolved Solids

Nitrates

Ultraviolet Radiation

Effective for:

Bacteria (coliforms) Microbiological contamination

For more detailed information request a copy of Extension Bulletin E214, "Interpreting Drinking Water Quality Analysis

- What Do the Numbers Mean?" Priced publication from the Rutgers Cooperative Extension office in your county.

Home Drinking Water Treatment Technologies and Devices