



Home Water Treatment in Perspective

F-131

Paul D. Robillard, Associate Professor of Agricultural Engineering
 William E. Sharpe, Professor of Forest Hydrology
 Bryan R. Swistock, Extension Associate

Introduction

Drinking water treatment equipment is gradually becoming common place in many homes and offices. Ion exchange units in the basement soften hard water problems; carbon filters remove chlorine at the tap; and countertop distillation units slowly drip out water free of heavy metals and dissolved solids. Consumers can choose from two basic types of treatment referred to as Point-of-entry (POE) or Point-of-use (POU). POE equipment is placed so that all water entering the structure is treated. POU equipment is strategically placed only where treated water is desired such as the kitchen sink.

The rise in popularity of water treatment devices is evidenced by the growth in the water treatment industry which has become a major industry in the United States. In fact, current manufacturers design, produce, and market a wide variety of treatment devices that promise to provide cleaner, purer, or safer water. While many water treatment manufacturers are very reputable companies concerned about consumer welfare, some manufacturers prey on either the ignorance or apprehension of buyers and use misleading advertising techniques to sell their products. As is often the case, a manufacturer will “sell you equipment you may not need to fix a problem you may not have.” This leads to unnecessary expenses for homeowners and in the long run may not actually provide the pure, safe water they desire.

Home water treatment can be confusing and expensive. This fact sheet will help answer some of the common questions about when and how to purchase treatment equipment.

Misconceptions About Home Water Treatment

Misconceptions about home water treatment arise out of a combination of false advertising, consumer myths, and misinformation. They are perpetuated by nonuniform testing standards and a lack of product certification requirements.

Let’s take a look at common advertising and selling strategies used by some POE/POU treatment manufacturers. First, companies advertise with misleading or even false statements such as “a device that is your only solution to purer water . . . a device that produces water like God made in the beginning . . . water that will make your hair more silky and manageable . . . healthier water.” Often product literature will mix jargon with misused technical terms. For example, consider this statement which describes the claims for one treatment device that “take naturally chaotic randomly placed water molecules with crystallizing minerals and produce water that is naturally soft with improved flavor while retaining the dissolved minerals for improved molecular solvency so important to health.” What does this mean? Sometimes generalized statements are made about all units that only apply to a particular model. These strategies mislead the buyer into believing that a device is the answer to *all* their water quality problems.

Another common selling technique for water treatment equipment is the use of a door-to-door “Water Specialist.” These specialists run a “free” test on your water and use colorful charts to show how their devices remove the contaminants discovered in your water. They tell you about phony national surveys, special trips you can win, and the contaminated, detrimental condition of the water flowing from your very own kitchen sink. Their

presentation usually ends with a final sales pitch to coerce the buyer into “making a decision today that will keep them healthy for the future.”

Consumers plagued by exaggerated health fears or misinformation are easy prey for such hard sell techniques. The environmental and health information readily available to the public in newspapers, magazines and documentaries often enlarges the risk of certain chemicals and puts doubt in consumers’ minds about just how safe their water is. If a test reveals the presence of a particular contaminant, many homeowners view water treatment as a quick fix. Then, without knowing which devices are intended for which problems, they seek help from a “professional” who sells them the wrong equipment. To further complicate the situation, a buyer is often not made aware of equipment maintenance requirements or warranties as a result, the device fails to remove contaminants and, in some cases, may actually introduce other contaminants into the water supply.

Unfortunately, another common misconception that permeates the POU/POE treatment industry is that water treatment equipment is the only solution to water quality problems. This is not always the case. Before purchasing equipment, homeowners should look into other alternatives to either upgrade or replace their current water supply. They can:

- Find and eliminate the contamination source
- Rehabilitate wells
- Develop a new water source
- Use bottled water for drinking and cooking

After exploring these alternatives along with POU/POE treatment, you can then make a knowledgeable decision about the best solution to your problem.

Misconceptions about water treatment are ultimately perpetuated by a lack of uniform standards and adequate device testing. The U.S. Environmental Protection Agency (EPA) does assign registration numbers to some devices to insure that silver or other bacteriostatic agents are not being released to the water following treatment. However, an EPA registration number is by no means a seal of approval. Two private organizations, the National Sanitation Foundation and the Water Quality Association, provide product testing. Unfortunately, manufacturers are not required to test their devices under these programs and often resist product testing because it is time-consuming and expensive. With no regulations or required testing, consumers are largely unprotected from false advertisers, bad products, or both.

How Are You Protected?

Probably the most unbiased source of consumer protection against fraudulent dealers is the National Sanitation Foundation (NSF). NSF is a not-for-profit organization dedicated to solving health and environmental problems. They provide a product registration and listing service that shows the results of third party evaluations, testing and inspection programs performed on water treatment units. As mentioned above, the product testing is totally voluntary. However, an NSF seal only means that the device has been tested according to NSF protocols and passed. This does not always mean that the product will perform as advertised or that it will do so for extended periods of time.

Table 1. Sources of information and product evaluators for drinking water treatment equipment.

Non-profit and Independent

National Sanitation Foundation, 3475 Plymouth Road, Ann Arbor, MI 48106 (www.nsf.org)

American Water Works Association, 6666 W. Quincy Ave., Denver, CO 80235 (www.awwa.org)

American Water Resources Association, 5410 Grosvenor, Suite 220, Bethesda, MD 20814 (www.awra.org)

Consumer Reports (www.consumerreports.org)

Better Business Bureau (www.bbb.org)

Government and Educational Institutions

County Extension Offices (www.cas.psu.edu)

USDA, Cooperative Extension Service, 14th & Independence Ave., Room 3346 South, Wash., DC 20250-0900 (www.usda.gov)

U.S. Env'l Protection Agency, Drinking Water Branch, 841, Chestnut Bldg., Phila. PA 19107 (www.epa.gov)

Nat'l. Technical Info. Service, U.S. Dept. of Commerce, Springfield, VA 22161 (www.ntis.gov)

Dept. of Health, Local Offices

Industry or Manufacturer Organizations

Water Quality Association, 4151 Naperville Rd., Lisle, IL 60532 (www.wqa.org)

Other organizations like the Better Business Bureau, County Extension Offices, and Consumer Reports can provide additional unbiased information to prospective buyers of treatment equipment. Because these organizations often deal directly with consumers, they know the success and failure rates of various devices and may provide buyers with information like company reputation, warranties, and facts on water treatment. A wise consumer should seek out these third party opinions before selecting a company or device.

A final source of information is the Water Quality Association of America (WQA). WQA is a self-governing body of manufacturers and distributors of POE/POU products. Although the association provides educational materials to the consumer and a product testing service for the industry, they also promote the use of treatment equipment. Their gold quality seal is marked on member products that have been tested and approved by the association. WQA attempts to police the industry to eliminate firms that sell products that do not live up to advertising claims. However, it is usually still in the best interests of the consumer to seek information from the third party independent sources mentioned above before purchasing.

What Can You Do?

Without uniform standards and product testing within the water treatment industry, a consumer's best protection against deceptive advertising is to become more knowledgeable about water treatment. Knowledge of common contaminants and which devices are designed to remove them is important. A company's reputation and legitimacy should be checked through organizations like the Better Business Bureau and the National Sanitation Foundation. Table 1 provides the names and addresses of water treatment information sources. Third, research the products carefully before selecting one model over another. You can narrow down your decision process by asking specific questions like those listed below and by carefully reading through product literature. This will protect you from making a poor choice and ultimately save time and money.

Finally, recognize that as a potential buyer of treatment equipment, you become the target for phony sales pitches, false advertising, and misinformation. A third party professional opinion at each stage of the selection process will avoid the confusion and pressure of pushy salesmen. **Always have your water tested by an outside certified lab for contaminant determination to confirm that you have a water quality problem.** (see F105 *Where to Have Your Water Tested*) Consult the Better Business Bureau for company information as suggested above, and obtain water treatment information from reliable sources like Penn State Extension Offices.

Questions to Ask

WHEN PURCHASING WATER TREATMENT EQUIPMENT

About the contaminant . . .

- What does the water analysis from the certified lab indicate? Are health hazards indicated? Are the health risks significant or small? Should testing be verified by another certified lab? Do I need someone besides the salesman to interpret the results?
- Will the problem require whole house (POE) treatment or a single-tap device (POU)?

About the company . . .

- How long has the company been in business? List of referrals?
- Are the company's products rated by the NSF or other third party (independent lab)?
- Does the company provide a written list of contaminants that the product will remove and removal efficiencies?
- Does the company retest periodically and provide maintenance information or a maintenance agreement?
- Written warranty?

About the product . . .

- What physical or chemical process does the device use to remove the contaminant (ion exchange, carbon absorption, UV disinfection, distillation, aeration . . .)?
- Was the product tested by an independent lab for the contaminant it is suppose to remove from your water? Ask for the verification of this evaluation.
- Will the unit produce enough treated water daily to accommodate household usage?
- Will electrical use be increased by using the product?
- Are there alarm or indicator lights on the device to alert you of malfunctions?
- How often does the product need to be maintained? Frequency of filter changes? Backwashing? Cleaning? Can you do the maintenance or must a professional be hired?
- Will hazardous materials (contaminated filters) need to be disposed? At what cost?
- What is the product lifetime? What does the warranty cover and for how long?
- Will the product increase household waste discharge and water usage?
- Are replacement parts available?

About costs . . .

- How much does the unit cost and does this cost include all the components?
- What are the installation charges?
- What is the expected annual maintenance cost?
- Do other companies sell similar equipment at less cost?

Additional Resources

For further information and resources on:

- Drinking Water Quality (see fact sheet
F 101 *Drinking Water Publications from the
Penn State College of Agricultural Sciences*)
- *Home Water Treatment*, NRAES-48 from
NRAES (607)255-7654 at Cornell University
Website: www.nraes.org

Please access:

Website: <http://wqext.psu.edu>
Email: mxh16@psu.edu
Fax: (814) 863-1031
Phone: (814) 865-7685

For more information about other Outreach
Publications and Resources from the Department of
Agricultural and Biological Engineering:

Website: <http://www.age.psu.edu>
Email: aqm5@psu.edu
Address: Penn State
246 Agricultural Engineering Bldg.
University Park, PA 16802
Phone: (814) 865-7685
Fax: (814) 863-1031

PSU rev. 8/01

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, or veteran status. Discrimination or harassment against faculty, staff, or students will not be tolerated at The Pennsylvania State University. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Director, The Pennsylvania State University, 201 Willard Building, University Park, PA 16802-2801, Tel 814-865-4700/V, 814-863-1150/

TTY.