

# **Water is Food.**

The U.S. government recently announced a nation-wide food safety initiative to expand food safety education and create an early-warning system for foodborne illnesses.

One area singled out was determining where individuals contact the pathogens that make them sick. A 1999 study from the United States Department of Agriculture showed that approximately 40 percent of all foodservice operations. Most foodservice operators report that they have numerous systems in place to address food safety. Yet, people are still getting sick.

In the food safety debate, many operators often forget water quality. Many waterborne pathogens can also be responsible for what is commonly considered a foodborne illness. Plus, when you consider how water is used in foodservice operation, water should really be considered food. For instance, a fountain beverage is 83 percent water and coffee is 99 percent water. Ice is 100 percent water while soups and sauces are between 50 and 80 percent water. The bottom line: if the water isn't safe, the food isn't safe.

This guide was developed to provide you with information you need to know about water quality and filtration, and to identify solutions for making the water in your operation the best it can be for you – and your customers.

# **Fact: Most consumers don't trust water quality.**

Consumers know more about water than ever before. The 1974 safe drinking water act, the upcoming release of the Environmental Protection Agency's (EPA) Consumer Confidence Reports (CCRs) and daily headlines about waterborne disease outbreaks around the world all fuel consumer concerns about the quality of their drinking water.

Concerns about water quality have been around for many years as the environmental movement raised consumer awareness of polluted waterways. Today water safety is more important than ever as those contaminated water sources make their way into our drinking water. The EPA has made great strides in recent years to address water quality and safety, but more need to be done.

A recent survey by the National Environmental Education & Training Foundation (NEETF) estimates that 65 million Americans – 24 percent of the population – say they do not drink tap water at all. Nearly seven out of 10 respondents to the NEETF survey said they used bottled, filtered or boiled water.

Consumers rely on restaurants to provide them with the same wholesome food and safe water they use at home. Fifty billion meals are eaten in restaurants, schools and cafeterias each year, and almost half of all adults were restaurant patrons on a typical day in 1995, according to the National Restaurant Association (NRA). Most assume that restaurants will protect them from food- and waterborne contaminants that could make them ill.

While responsible foodservice operators have some type of water filtration system in place to address consumer concerns, it's important to recognize that few filtration systems are designed to remove cysts that cause most common waterborne illnesses (*Giardia*, *Entamoeba* and *Cryptosporidium*). Although no foodservice operator knowingly serves contaminated food or beverages to customers, ignoring the critical role that water plays in an operation can be disastrous.

According to National Restaurant Association statistics, a single outbreak of food- or waterborne illness can cost a foodservice operation as much as \$75,000 in legal fees, medical claims, lost employee wages, cleaning and sanitizing, discarded food supplies, and lost income from

negative publicity and/or being shut down. Of course, cost rise dramatically if the incident involves a death or serious injury.

Understanding the role water plays in your operation and choosing the correct water filtration system may be your best weapons against potential illness outbreak in your establishment.

**Nearly seven out of 10 respondents to the NEETF survey said they used bottled, filtered or boiled water.**

## **Water quality facts you need to know.**

1. Approximately 900 people die each year from consuming contaminated drinking water
2. Approximately 400-500 water- and foodborne outbreaks are reported each year. But most outbreaks are never reported.
3. Approximately 9,000 people die annually from foodborne illness – some of which may result from water contamination food sources.
4. A *Giardia* outbreak in Greeley, Colorado in September 1999 resulted in more than 80,000 people boiling water for safety. These outbreaks, once uncommon, are occurring more frequently all over the world.
5. Nearly 40 percent of the nation's rivers and lakes are too polluted for safe swimming or fishing.
6. More than 700 toxic substances have been identified in random drinking water sampling: yet municipal water suppliers are required to test for only a handful of contaminants.
7. There were more than 600 *Cryptosporidium* outbreaks in the United States in the first six months of 1999. There were more than 1500 similar outbreaks in England and Wales during the same time frame.
8. It's estimated that 40 million Americans are currently drinking water containing more than the legal lead limit set by the EPA. Lead poisoning can cause mental retardation and birth defects.

## **Make time to test your water.**

Half the battle in protecting consumers from harmful contaminants and serving clear, good-tasting water, is learning exactly what contaminants are in your water supply. Once you know, selecting a water filtration system to address the problem will be easy.

In October 1999, all municipal water treatment plants are required to provide business owners and residents with CCRs at least once each year. These reports, in part, will provide you with a list of drinking water violations that have occurred in the year and levels of contaminants in the water supply.

What those reports won't show, however, is the quality of the water coming directly out of your faucets or running through your equipment. Water distribution pipes leading from most of the nation's treatment plant often allow rust, lead and other corrosive metals to contaminate previously treated water. Worse yet, despite increased vigilance from municipalities, certain harmful cysts, like *Cryptosporidium*, remain resistant to common disinfectants like chlorine and ammonia. Recent *Cryptosporidium* outbreaks in Sydney, Australia and earlier outbreaks near Milwaukee, Wisconsin caused hundreds of thousands of illnesses and several deaths. These outbreaks occurred when municipal treatment failed to eliminate deadly cysts from the water source. And all are completely preventable with an appropriate water filtration system.

You won't really know what's in your water unless you have it tested.

# **Contaminants Are Everywhere.**

There are many contaminants that are commonly found in water. Few compounds actually make people sick. However, there are a few health-related contaminants that are becoming more common. You should be aware of them and the effects they could have on you and your customers.

## ***Cysts***

*Cryptosporidium* is a waterborne parasite that causes severe stomach cramping, fever, vomiting and diarrhea that can last 10-14 days in a healthy person. It can be fatal for persons with immune deficiencies (e.g. infants or the elderly). Hundreds of thousands of people are sickened each year when this parasite is present in the water.

*Cryptosporidium* can be found in virtually any surface water source, yet the EPA does not require municipal water systems to test for it. If *Cryptosporidium* in your water supply, you and your customers are at risk unless your water filtration system is certified for its removal.

*Giardia Lamblia* is a one-celled, microscopic parasite that lives in the intestines of people and animals. It is responsible for an illness known as giardiasis. Found in every region of the United States, It causes symptoms similar to *Cryptosporidium* that can last from four to six weeks in a healthy person.

This parasite is the most common of all waterborne parasites. Recent outbreaks of giardiasis have resulted in thousands of illness. Those with weakened immune systems are particularly vulnerable to this cyst. Only certain water filtration systems are designed to remove cysts.

## ***Heavy Metals***

High levels of cadmium, mercury and lead in drinking water can cause nerve damage, mental retardation, birth defects and cancers. These heavy metals are commonly found in source water located near industrial facilities. Most water treatment plants are designed to take out these metals, but trace amounts are still found in drinking water or can be re-introduced by old distribution systems and pipes in order homes and building.

## ***Synthetic Organic Chemicals (SOCs)***

SOCs include man made organics, such as pesticides, that are carried into groundwater by rain and irrigation. These chemicals have been linked to circulatory, respiratory and nerve disorders. Again, water treatment plants are usually designed to remove the majority of these compounds.

These are many other compounds that may occasionally appear in drinking water supplies. Public water treatment facilities have come a long way in their ability to address some previously common compounds, such as arsenic, dioxins, PCBs, benzene and vinyl chloride. The CCRs will help everyone understand what is and is not acceptable.

Cryptosporidium can be found in virtually any surface water source, yet EPA does not require municipal water systems to test for it.

**Cryptosporidium can be found in virtually any surface water source, yet the EPA does not require municipal water systems to test for it.**

## **Always look for NSF Certification**

There are many different water filtration systems on the market to address virtually any water quality need. It's important to know what you're buying and what performance you can expect from a system.

Water filtration systems have only one quality assurance standard- Certification. NSF International, the independent testing agency that sets product standards for water filtration manufactures, established its Drinking Water Treatment Unit Certification Program to determine if a water filtration systems performs in the marketplace as tested. Manufactures voluntarily submit products to NSF to receive third-party certification of their systems and performance.

NSF Certification means the contaminant reduction claims listed on the label are true and accurate, the materials of construction do not add anything to the water, the system is structurally sound and that advertising claims are true and accurate. NSF has developed a series of standards to reflect various levels of filtration – i.e., aesthetics, health, etc. NSF Standard 53 is the highest standard available for protection from health hazards such as lead and cysts. Choosing a water filtration system with rating of NSF 53 is like an insurance policy against these potential contaminants.

## **Say goodbye to NSF assurances when choosing “will fit” alternatives.**

When a manufacturer states on its packaging and advertisements that its product “fits,” “can be used,” or “can replace” another manufacturer’s element is in the field, implying the system maintains its NSF Certification, your operation and your customers may be at risk. According to NSF, once you’ve installed a system, using another brand of replacement cartridge makes NSF certification of either the system or the cartridge null and void.

For example, if you purchase a system certified by NSF for removal of Cryptosporidium, then purchase another manufacturer’s replacement cartridge because the packaging states it will “fit” the housing of the original system, the certification is void. There is no way to determine if the filter does what it claims because it has never been tested. And if it doesn’t do what it claims, and Cryptosporidium enters you operation’s water system, you and your customers are still at risk even though the original system as certified by NSF would have protected you from the cyst.

In water filtration, as with any high performance product, you get what you pay for. Often, the less expensive filters remove fewer contaminants, provide lower levels of performance and are, in general, less reliable. Mixing and matching cartridges is a risky game. Factors that impact the ultimate performance of a water filtration system – sealing mechanisms (o-rings, gaskets, spacers), flow restrictors and tubing to limit flow- must be carefully calibrated to assure maximum performance. If the “fit” of a filter isn’t exact, harmful cysts, sediment and other contaminants not removed by water treatment plants may pass through the microscopic openings and infect the water in you operation.

For maximum protection, always choose a filter certified by NSF, and stick with that brand when you replace the cartridge.

## All Filters are not created equal.

It is easy to get lost in the jungle of filters and technology. Granular activated carbon. Carbon block. Precoat. Reverse osmosis. Even water softeners. To make an educated choice on the type of water treatment you require, follow three steps: 1) determine what is in your water, 2) understand the technologies available to you, and 3) select the most cost-effective solution for your needs. Your local Everpure Water Treatment Specialist can assist you with all these steps. But here’s a brief overview of the most popular water treatment technologies.

***Precoat filtration*** is a very reliable way to remove particulate contaminants, off-tastes and odors. Microfiltration can remove cysts and lead. The unique precoat design consists of a material folded over a drainage grid, all of which serves as support for a coat of the adsorptive Mico-Pure® powder a proprietary blend of powdered activated carbon and other filtering materials. An exclusive technology available only from Everpure, precoat filters provide a longer filter life and remove 99.99 percent of all particles  $\frac{1}{2}$  micron and larger.

***Granular activated carbon (GAC)*** Granular activated carbon (GAC) filters consist of a housing filled with loose activated carbon granules. The activated carbon (AC) surface attracts and holds molecules such as those that cause poor tastes and odors. Better systems can reduce other contaminants, such as lead. These lower-priced systems do not “fine-filter” the water and therefore are not as effective as other products in removing particulates and cysts.

***Carbon block*** is activated carbon mixed with chemical binders to form a hard block of carbon, which is then cut and shaped to fit the filter housing. Sediment removal is dependent on the micron rating. Higher carbon content removes odors and off-tastes. There are submicron carbon block filters that remove smaller sized articles, providing cyst reduction; these filters must be handled carefully as they can crack, causing an undetectable contaminant bypass.

***Reverse osmosis (RO)*** systems use pressure to force water molecules through a membrane, causing contaminants to be left behind and separated from the water. These systems are very effective, especially for removal of heavy metals, nitrate, fluoride and pesticides. But they are more expensive both in terms of equipment and maintenance costs than other systems. They are also limited in their ability to produce product water over a given period of time. Due to these critical factors, it is important to verify that your water quality requires RO.

***Water Softeners***, which condition the water through an iron exchange process, are at time confused with filtration. Water softeners are primarily used to reduce the mineral content (hardness) in water to prevent scale buildup. They do not produce “ingredient” water, free of off-tastes and odors, particulates, certain other contaminants and cysts. To produce quality ingredient water, other equipment) such as that described on these pages) is required.

## **Good quality water makes good economic sense, too.**

Protecting your customers from water and foodborne illnesses isn't the only reason high quality water makes sense. Fountain dispensers, ice machines and coffeemakers typically consume a combined two or three gallon of water per minute and are considered the backbone of any good foodservice operation. Protecting your investment in costly, but absolutely necessary, foodservice equipment by filtering the water can't help but boost the bottom line.

Mineral scale builds up on heating elements, ice machine evaporator plates and other key components of coffee and espresso machines. It can also cause havoc with fountain beverage dispensers, ice machines, steamers and dishwashing equipment. Poor quality water can cause equipment to work harder, consume more electricity and fall prematurely. Industry research by icemaker manufacturers shows that two-thirds of all foodservice equipment maintenance costs are water-related and can easily be prevented. A high quality water filtration system will not only help an operation address food and water safety issues, but can reduce scale buildup and the need for service calls and frequent equipment replacement. Many of today's most profitable, well maintained food service operations know that removing dirt and other abrasive particles that consistently damage the internal workings of foodservice equipment, such as water distribution lines and pumps, isn't optional, it's essential.

## **It's easy to have good water and good food.**

Your customers may take it for granted that the water in your operation is as safe as it can be. Unfortunately, in this litigious society, you don't have the luxury of taking water safety for granted. It only takes one waterborne outbreak to close down a business. The proper water filtration system can be a cost-effective insurance policy against a potential outbreak in your operation.

Smart operators are also making customers aware of food and water safe practices. Consumers already know the risk, so promote the actions you're investing in to ensure their safety. Assure them it's okay to not only eat the water, but everything else in which water is an ingredient in your operation.

# Water Quality Resources

Everpure. Inc.

[www.everpure.com](http://www.everpure.com)

National Sanitation Foundation

[www.nsf.org](http://www.nsf.org)

Water Quality Association

[www.wqa.org](http://www.wqa.org)

Environmental Protection Agency

[www.epa.gov](http://www.epa.gov)

Food and Drug Administration

[www.fda.gov](http://www.fda.gov)

Center for Disease Control and Prevention

[www.edc.gov](http://www.edc.gov)

U.S. Department of Agriculture

Food Safety and Inspection Service

[www.usda.gov](http://www.usda.gov)

\*This was rewritten and .pdf by Gayle Barker and Danny Barker from the Everpure booklet named "Go ahead, Eat The Water." ©1999 EVERPURE, INC.

Visit EVERPURE on the web at [www.everpure.com](http://www.everpure.com)

Visit [www.icecoldservice.com](http://www.icecoldservice.com) for ordering or information on Everpure water filter systems, Ice machine sales – service or installation in the Los Angeles/Orange County area.

---

\*