

City of Warren Water Filtration Plant

Chloramines

To Whom It May Concern:

The City of Warren uses chloramines instead of chlorine to disinfect the drinking water from the Warren Water Filtration Plant. Chloraminated water is the same as chlorinated water for all of the normal uses we have for water.

However, there are two groups of people who need to take special care with chloraminated water: *kidney dialysis patients and fish owners*. Chloramines must be removed from water used in the kidney dialysis process and from water that is used in fish tanks.

This brochure provides answers to commonly asked questions about chloramines and why the City of Warren is making the change. The brochure will help you understand chloramines. If you think you might be affected by this change, we urge you to seek professional assistance.

What is chloramination?

The City of Warren has historically chlorinated drinking water at the City's Water Filtration Plant. Chlorination is the addition of chlorine to disinfect against bacteria and other potentially harmful microorganisms. We use a method called chloramination to disinfect our drinking water. Chloramination is the use of chlorine mixed with ammonia to disinfect the water. When chlorine and ammonia are combined, they form a series of chemical compounds called "chloramines". Chlorine is a more potent disinfectant than chloramines at killing bacteria. Chloramines, on the other hand, are four times more stable than chlorine, and are valued for their residual effect in disinfecting drinking water. To take advantage of the disinfection properties of both chlorine and chloramines, we will use chlorine as a primary disinfectant at the Water Filtration Plant to kill microorganisms. Before the water exits the Plant we will

add ammonia to form chloramines that will prevent bacterial from growing in the pipes of the distribution system and will eliminate the need to add additional chlorine at booster sites along the distribution pipes.

Why chloramination?

Use of chlorine as a disinfectant results in the formation of disinfection by-products, called trihalomethanes (THM's) and halo acetic acids (HAA's), in the water distribution system. These disinfection by-products are formed from reactions of chlorine with small amounts of naturally occurring organic substances in the filtered water. Use of chloramines to disinfect the water will result in significantly lower levels of disinfection by-products in Warren's water distribution system.

What are trihalomethanes?

Trihalomethanes (THMs) are volatile organic chemicals that are produced when chlorine interacts with organic material (originating from dead leaves, dead vegetation, sediment, etc.) in the water. The U.S. Environmental Protection Agency (EPA) conducted tests that revealed that THMs are either probable or possible human carcinogens when consumed in large quantities over a prolonged period of time. EPA has recently reduced the allowable maximum level of THMs in drinking water from 100 parts per billion to 80 parts per billion. The Warren Water Filtration Plant has always met the EPA standards. Switching to chloramination will provide two major advantages: 1) Will reduce concentrations of THMs in the City's water, and 2) Will make it easier for the Water Filtration Plant to achieve compliance with the EPA standards.

Are chloramines safe?

Yes, chloramines have been used safely in the United States and Canada for many years. An example is the Mahoning Valley Sanitary District (i.e., principally Youngstown and Niles). EPA accepts the use of chloramines as a disinfectant and as a means to reduce THMs and other disinfection by-products. Chloraminated water is safe for most of the normal uses such as bathing, drinking, cooking, laundering, dishwashing, water plants, swimming pools and all uses we have for water every day.

What side effects should I be concerned about?

There are two groups of people who need to take special care with chloraminated water: *kidney dialysis patients and fish owners*. Dialysis patients need to use water free from chloramines in kidney dialysis machines. Chloraminated water may cause fish, reptiles, turtles and amphibians to die. Chloramination can also impact breweries and bakeries as yeast and enzymes may not survive.

Why do kidney dialysis patients have to take special precautions?

Choramines are harmful they go directly into the bloodstream. In the dialysis process, water comes into contact with the blood across a permeable membrane. Chloramines in that water would be toxic, just a chlorine is toxic, and must be removed from water used in kidney dialysis machines, there are two ways to do that – either by adding ascorbic acid or using granular activated carbon (GAC) treatment. Medical centers that perform dialyses are responsible for purifying the water that enters the dialysis machines. All medical facilities have been notified of the change. Dialysis systems already pre-treat their source of water to remove chlorine. However, some modifications will be necessary to remove the chloramines. Home dialysis service companies can usually make the needed modifications, but you should check with your physician to be certain. If you have any doubt, please consult your physician.

How can I remove chloramines from my drinking water?

Unlike chlorine, chloramines do not disappear on their own with time. Chloramines can be removed from the water by using a water conditioner containing a dechlorinator or by using granular activated carbon filters. These are normally at your pet store. The combination of reverse osmosis and carbon filtration will be effective in removing chloramines. Chloramines are a little bit more stubborn than chlorine, and require a longer contact time (the time that water is in contact with the carbon media). For effective performance of these devices, dual filter assemblies would have to be used or frequent replacement of the filters would be required.

Can pregnant women and children drink chloraminated water?

Yes. Everybody can drink water that contains chloramines. It is also safe to use chloraminated water in cleaning an open wound because virtually no water enters the bloodstream that way.

Where to call?

If you have any questions about the Water Filtration Plant's treatment process, please call (330) 841-2578, Vincent Romeo, Superintendent.

If you have any questions about kidney dialysis, please call your physician.

If you have any questions concerning the care of fish, please call your pet store.

Sincerely,

Robert L. Davis
Director of Utility Services
City of Warren