Frequently Asked Questions About the Use of Chloramines in Water Disinfection Processes

What is chloramine?
Chloramine is a disinfectant used in drinking water to remove bacteria and viruses. It is a combination of chlorine and a small amount of ammonia.

Are chloramines new?
No. Many cities in the U. S. and Canada have used chloramines for decades. Denver, Colorado, for instance, has used chloramines since 1917.

Why is CPNMD making the change to chloramines?
Over the last two years, CPNMD has built working relationships and entered into agreements with various water entities. Preparations have also been made to assimilate our community's water treatment method with that of our future partners, because those entities have been using chloramines for many years as a disinfectant within their distribution systems. For this reason it is necessary for CPNMD to convert to a disinfection process utilizing chloramines.

Do I need to take any precautions or do anything different when using chloraminated water?
Only three special groups need to take precautions with chloraminated water: fish, reptile and amphibian owners, and kidney dialysis facilities, and businesses or research facilities using or requiring highly treated water.

What are trihalomethanes (THMs)?
THMs are chemical compounds that are formed when chlorine mixes with naturally occurring organics in water. The U. S. Environmental Protection Agency (EPA) conducted tests which determined that chloroform (one of the THMs) is carcinogenic when consumed by laboratory animals in large quantities over a prolonged period of time, and is a suspected carcinogen for people. EPA set a standard of 100 parts per billion as the safe maximum level of THMs in drinking water.

Are chloramines safe?
Yes. Chloramines have been used safely in the U. S. and Canada for many years. EPA accepts chloramines as a disinfectant and as a way to avoid THM formation. Were it not for some kind of disinfectant in drinking water, disease-causing organisms such as typhoid and cholera could be carried in your drinking water. Chloraminated water is safe for bathing, drinking, cooking and all uses we have for water every day. However, there are two groups of people who need to take special care with chloraminated water: kidney dialysis patients and fish owners.

HEALTH QUESTIONS

Why do kidney dialysis patients have to take special precautions?
In the dialysis process, water comes in contact with the blood across a permeable membrane. Chloramines in that water would be toxic, just as 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 treatment. Medical centers that perform dialysis are responsible for purifying the water that enters the dialysis machines.

Do medical centers, hospitals, and clinics that perform kidney dialysis know about the change to chloramines?
Yes. All medical facilities have been notified of the change. All dialysis systems already pretreat their source water: many will have to modify their equipment before January, 1997. If you have any doubt, please ask your physician.

What should people with home dialysis machines do to remove chloramines?
You should first check with your physician who will probably recommend the appropriate type of water treatment. Often, home dialysis service companies can make the needed modifications, but you should check with your physician to be certain.

If chloramines are toxic, won't they harm people and pets?
Chloramines are harmful when they go directly into the bloodstream, as happens in kidney dialysis. Fish also take chloramines directly into their bloodstreams. That's why chloramines must be removed from water that goes into kidney dialysis machines or is used in fish tanks and ponds.

If chloramines shouldn't mix with blood, is it safe to drink water containing them?
Yes. Everyone can drink water that's chloraminated because the digestive process neutralizes the chloramines before they reach the bloodstream. Even kidney dialysis patients can drink, cook and bathe in chloraminated water. It's only when water interacts directly with the bloodstream - as in dialysis or in a fish's gill structure - that chloramines must be removed.

How about washing an open wound, such as a cut, with chloraminated water?
Certainly. Even large amounts of water used in cleaning a cut would have no effect because virtually no water actually enters the bloodstream that way.

Can people with kidney ailments, on low-sodium diets, or with diabetes use chloraminated water?
Yes. People with those medical problems can use chloraminated water for all purposes.

If chloramines are harmful to fish, how can people safely drink the water?
Chloraminated water is no different than chlorinated water for all of the normal uses we have for water. Water that contains chloramines is totally safe to drink. The digestive process neutralizes the chloramines before they reach the blood stream. Even kidney patients can drink and bathe in chloraminated water.

Can pregnant women and children drink chloraminated water?
Yes. Everyone can drink water that contains chloramines.

What about people who are sensitive to chemicals?
The amount of chloramines will be extremely small - no more than 2 parts per million parts of water. If you are concerned that even this low concentration might cause problems for you, check with your physician. The predominant type of chloramines will be monochloramine NH2Cl) and will be in the ratio of 5 parts chlorine to one part ammonia-nitrogen.

Will chloramines change the pH of the water?
No. The pH of the water will remain the same as before.

What will water taste like with chloramines?
If you notice any change at all, you may find the water has less of a chlorine odor or taste.

Do home water softeners remove chloramines?
Most water softeners are not designed to remove chloramines.

Will a carbon filter remove chloramines?
Yes. However, it must contain high quality granular activated carbon and you must permit sufficient contact time.

Will reverse osmosis remove chloramines?
No. Salts can be caught by the permeable membranes but chloramines pass through easily.

Will chloramines be removed by boiling the water?
No. Boiling is not an effective method of removing chloramines from water. The only practical methods for removing chloramines from water are using a water conditioner, which contains a dechlorination chemical, or by using granular activated carbon.

How much of a dechloraminating agent or what type of granular activated filter should be used?
Ask your pet supplier or read the instructions on the container or equipment.

Does bottled water have chloramines?
It could. If the bottled water company uses water supplied by a water district that uses chloramines, then the water it provides will have chloramines in it, unless the company takes special steps to remove them.

How will chloramine affect household plumbing, pipes, and water heaters? After the conversion, rubber parts on some household plumbing and water heaters may degrade faster than previously experienced. When replacing rubber plumbing parts, ask for chloramine-resistant parts, which are available. Plumbing and hardware supply stores and lumbers will be able to provide further information.

Will chloramines affect swimming pools?
No. You will still need a free-chlorine residual to retard algae and bacteria growth. The chlorine chemicals and test kits you currently use can still be used with confidence. Contact your local pool supply store for any specific questions.

How about using chloraminated water on ornamental plants, vegetables or fruit and nut trees? Will beneficial soil bacteria be harmed?
The small amount of chloramines should have no effect on plants of any type. Beneficial bacteria will generally be protected by the soil in which they live. Chloramines will be removed by the high chlorine demand in the soil.

FISH HOBBYISTS

How do chloramines affect fish?
Chloramines are toxic to fish and must be removed from water, just as chlorine is toxic and must be removed. You may not have had to remove chlorine from your aquarium water, however, because it disappears rapidly on its own. This is not the case with chloramines and steps should be taken to remove chloramines. Most pet stores have sold dechlorinating agents for years and, generally, have recommended using them. The chemicals used to remove chlorine should work just as well for chloramines. Several manufacturers have been adding chloramine information on labels on their products for years.

Won't letting water sit for a few days remove chloramines from tank or pond water?
No. Unlike chlorine, which dissipates when water sits for a few days, chloramines may take weeks to disappear. If you don't want to use a dechloraminating chemical, the next best solution is to install a granular activated filter and allow sufficient contact time.

If only a small amount of water is added to an aquarium or pond to make up for evaporative loss, do chloramines still have to be remove?
This will depend on the amount of water added in relation to the size of the aquarium or pond and the time period over which it's added. An alternative is to monitor for a total chlorine residual in the aquarium or pond while adding the chloraminated water. Chloramine residuals in water used to keep fish should be kept below 0.1 mg/L. Total chlorine test kits are available

from pet stores, pool supply stores and chemical supply houses.

Are both salt and fresh water fish affected by chloramines?
Chloramines will have to be removed if the water used to make salt water solution comes from a chloraminated supply. Chloramines affect salt water fish just as they effect fresh water fish.

Can Koi assimilate chloramines unlike other fish?
No. Koi are just as susceptible to chloramines as any other fish.

What are the effects of ammonia on fish?
Ammonia can be toxic to fish, although all fish produce some ammonia as a natural byproduct. Ammonia is also released when chloramines are chemically removed. Although ammonia levels may be tolerable in individual tanks or ponds, commercial products are available at pet supply stores to remove excess ammonia. Also, biological filters, natural zeolites and pH control methods are effective in reducing the toxic effects of ammonia.

Mosquito control agencies sometimes use fish to eat mosquito larvae. Will these fish be affected?
They would be affected if the water in the channels or ponds is chloraminated. Most water that runs into channels, however, would be agricultural, landscaping or storm water drainage. After water has been used for one purpose, it probably would not have enough residual chloramines to affect the fish.

Will chloraminated water used for agricultural purposes have any effect on fish in adjacent streams?
Most water, which runs into streams and ponds, would be agricultural, landscaping or storm water drainage. After water has been used for one purpose, it probably would not have enough residual chloramine to affect fish.

FOR MORE INFORMATION

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