

Monochloramine and Fish



A change in Huntertown Water Treatment is coming and will affect your aquarium treatment procedures

The Huntertown Water Treatment Plant will be changing the disinfection process from free chlorine to monochloramine. Although the change to monochloramine will help to ensure that the Town can continue to provide safe drinking water as growth continues, this change will be toxic to fish, reptiles and amphibians. Unlike chlorine, monochloramine will not dissipate rapidly so you will need to take additional steps to remove them from the water that these animals live. Here are some facts that you should know:

What is Monochloramine?

Monochloramine is another form of disinfectant used to kill potentially harmful bacteria in water. Monochloramine is formed when chlorine and ammonia are combined.

Why is monochloramine toxic to fish?

When people, animals, or birds swallow water that contains monochloramine, the chlorine and ammonia is neutralized by the digestive system before it enters the blood stream. Fish and other marine life, however, do not just swallow the water – they breathe it. When water contains monochloramine, these substances enter directly into the blood stream and chemically bind with the iron in the red

blood cells, making it difficult for those cells to carry oxygen. Eventually the fish and amphibians may “suffocate” from lack of oxygen.

How can I remove monochloramine from the water?

As monochloramine breaks down, either naturally or through the use of dechlorination chemicals, ammonia is released. This ammonia must be removed from the water in fish tanks and ponds prior to contact with fish or amphibians. Ammonia may be removed by specific agents to remove chloramines and ammonia, natural zeolites, or a high grade granular activated carbon filter. Contact your local pet store to determine the best method for removing monochloramines in your situation.

Will letting the water sit for a few days cause the monochloramine to disappear?

No. Unlike free chlorine, which does dissipate when sitting for a day or two, monochloramine may take weeks to disappear.

Do monochloramines have to be removed if only a small amount of water is added to make up for evaporation loss?

To know for sure, you will have to monitor the total chlorine residual. Chloramine residuals in water used to keep fish should be kept below 0.1 mg/l. Total chlorine test kits are available from pet and pool supply stores. Make sure, that the kit is for “total chlorine” or “combined chlorine”, not “free chlorine”. A free chlorine test of monochloraminated water would read zero but still be toxic to fish.

Will a carbon filter remove monochloramine?

Yes. To be effective, however it must contain high quality granular activated carbon and you must provide sufficient contact time between the water and carbon filter.

Will reverse osmosis remove chloramines?

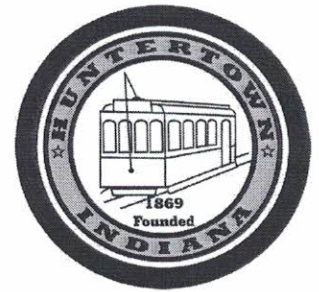
No. Salts can be captured by the membrane but monochloramine easily passes through.

Will boiling remove monochloramines from water?

No. The only practical methods for removing monochloramine from water are from a specially designed water conditioner that contains a dechlorinator or by using an activated granular carbon filter. Ask your pet store for recommendations and use of these products.



Monochloramine and Dialysis



A change in Huntertown Water Treatment is coming and will affect Dialysis Patients

The Huntertown Water Treatment Plant will be changing the disinfection process from free chlorine to monochloramine. Monochloramine is formed from the combination of chlorine and ammonia and is an alternative disinfecting method used to kill bacteria in water.

What does this mean for kidney dialysis patients?

Drinking either chlorinated or monochloraminated water is safe. Chlorine and monochloramine are harmful only when they directly enter the bloodstream through the dialysis process. As a result, you may need to change the way water is pretreated for dialysis. Depending on the method of chlorine removal your dialysis machine uses now, some modifications may be necessary.

Why do kidney dialysis patients need to take special precautions?

In the dialysis process, the compounds in water come in contact with blood across a permeable membrane. The monochloramine in that water would be harmful, just as chlorine is harmful, and must be removed from water used in kidney dialysis machines. There are two ways to do that: either by adding ascorbic acid or by using a granular-activated carbon treatment. Medical centers that perform dialysis are responsible for preparing the water that enters dialysis machines.

Is it safe for kidney dialysis patients to drink water containing monochloramine?

Yes. Because the digestive process metabolizes the monochloramine before it reaches the bloodstream, everyone can drink monochloraminated water. Kidney dialysis patients can drink, cook with and bathe in water treated with monochloramine. It's only a concern when water interacts directly with the bloodstream, as in dialysis.

What should people with home dialysis machines do to remove monochloramine?

You should first check with your dialysis physician, who will probably recommend the proper type of water treatment. Often, home dialysis service companies can make the needed modifications, but you should check with your physician to be certain.

