



# Chloramines and Fish

## A change in Sioux Falls' water treatment will affect your aquarium treatment procedures

Prior to June 2001, the drinking water produced by the City of Sioux Falls Water Purification Plant was disinfected by using free chlorine. In June 2001 the disinfectant was changed to chloramines. Although chloramines help to make your water safe to drink, they are toxic to fish, reptiles, and amphibians. Chloramines must be removed from the water these animals live in. Unlike free chlorine, chloramines do not dissipate rapidly from water, so you will need to take extra steps to remove them. Here are some facts you should know:

### What are chloramines?

Chloramines are another form of disinfectant which is used to kill potentially harmful bacteria in water. Chloramines are a combination of chlorine and ammonia and both can be toxic to fish and amphibians.

### Why are chloramines toxic to fish?

Chloramines are a combination of chlorine and ammonia, both of which are toxic to fish. When people, animals, or birds swallow water that contains chloramines, the chlorine and ammonia is neutralized by the digestive system before it reaches the blood stream. Fish and other marine life, however, don't just swallow water—they breathe it. When the water contains chloramines, these substances enter directly into the blood stream and chemically bind to iron in the red blood cells, which makes it difficult for those cells to carry oxygen. Eventually, fish may "suffocate" from lack of oxygen.

### Are chloramines toxic to both saltwater and freshwater fish?

**Yes.** Chloramines affect saltwater fish in the same way that they affect freshwater fish.

### How can I remove chloramines from the water?

As chloramines break down, either naturally or through the use of dechlorination chemicals, ammonia is released. This ammonia must be removed from the water in the fish tanks or ponds prior to coming into contact with the 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 chloramines in your situation.

### Will letting water sit for a few days cause chloramines to disappear?

**No.** Unlike free chlorine, which dissipates when water sits for a day or two, chloramines may take weeks to disappear.

### Do chloramines have to be removed if only a small amount of water is added to an aquarium or pond to make up for evaporation loss?

To know for sure, you will have to monitor for 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 stores, pool supply stores and chemical supply houses. Make sure, however, that the kit is for "total chlorine" or "combined chlorine," not "free chlorine." A free chlorine test of chloraminated water would read zero but still be toxic to fish.

### Will a carbon filter remove chloramines?

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

### Will reverse osmosis remove chloramines?

**No.** Salts can be caught by the permeable membrane but chloramines pass through easily.

### Will boiling remove chloramines from water?

**No.** Boiling is not an effective way to remove chloramines from water. The only practical methods of removing chloramines from water are using a water conditioner which contains a dechlorinator or by using granular activated carbon. Ask your pet supplier for instructions on how to use these products.

If you have any questions or comments about chloramination, please contact Tim Stefanich at the Sioux Falls Water Purification Plant at 367-7025, or send an e-mail to [tstefanich@siouxfalls.org](mailto:tstefanich@siouxfalls.org)

