

**Is chloraminated water safe?** Chloraminated water is completely safe for everyone to drink. Chloraminated water is safe for drinking, bathing, cooking, cleaning scrapes and cuts, doing laundry, watering the lawn and garden. With the exception of the kidney dialysis process, aquarium owners, and certain businesses, there will be no difference in how water can be used.

**Why do kidney dialysis patients have to take special precautions with chloraminated water?** Dialysis patients can drink, bathe, and cook with chloraminated water, but they cannot use chloraminated water in the dialysis process. Chloraminated water can be toxic if it enters directly into the bloodstream which occurs during the dialysis process. It is safe to drink chloraminated water because the digestive process neutralizes the chloramines before they enter the bloodstream.

**If chloramines shouldn't mix with blood, is it safe to drink water containing chloramines?** Yes, everyone can drink water disinfected with chloramines because the digestive process neutralizes the chloramines before they enter the bloodstream. Even kidney dialysis patients can drink, cook, and bathe in chloraminated water.

**Why do fish owners have to take precautions with chloraminated water for fish, reptiles, and amphibians that live in water?** As with chlorine, chloramine is toxic to fish (saltwater and freshwater), reptiles, and amphibians that live in water. They take chloramines directly into their bloodstream through their gills and must be protected.

**What can aquarium owners do to remove chloramine?** Household, restaurant, and commercial

fish tank owners will need to change their current chlorine removal process to remove chloramine. The appropriate products or carbon filtration equipment for removing chlorine and ammonia will be available in most pet and aquarium stores prior to the conversion. More detailed information addressing chloramine and ammonia removal methods can be obtained from your local pet store.

**Is chloraminated water safe for plants and other animals besides fish, reptiles, and amphibians?**

Yes. Chloraminated water is safe for all other plants and animals. This includes cats, dogs, birds, and rabbits to name a few.

**Do home water purifiers remove chloramines?**

Activated carbon filters are a recommended method for removal of chloramines. If your system contains an activated carbon filter, it should remove chloramines. However, chloramines are more difficult to remove than free chlorine, so the filters may need to be replaced more frequently. Consult your manufacturer for specific information.

**Will chloramines affect my swimming pool or hot tub?**

If you use chlorine to sanitize your pool or hot tub, you may require a higher dose of chlorine to remove the chloramines and to achieve a free chlorine residual when you fill or add make-up water to your pool or hot tub. Contact your pool supply stores for more specific information.

**Who should I call if I have questions about chloramines?** You may call the Water Purification Plant at 367-7025 during normal business hours (8 am - 4:30 pm).

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# chloramines and your drinking water

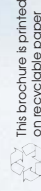
PREPARED BY THE CITY OF SIOUX FALLS  
WATER PURIFICATION DIVISION  
OFFICE OF PUBLIC WORKS

In order to meet stricter federal water quality regulations that became effective in 2002,

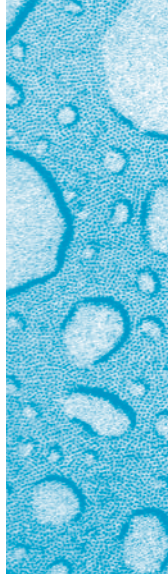
the Sioux Falls Public Works Water Division changed the method for disinfection within the distribution system throughout the City. In

June 2001, the disinfectant in the distribution system changed to chloramines.

We have put together a list of questions and answers that will help you better understand how this conversion may affect you.



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**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.

**Are there other water systems that are currently using chloramines?** Yes, Many of the major metropolitan areas within the country are currently using chloramines to disinfect their drinking water. Cities such as Denver, St. Louis, Minneapolis, St. Paul, Kansas City, and Dallas use chloramines. Cities in South Dakota include Aberdeen, Huron, Mitchell, WEB Rural Water and Mid-Dakota Rural Water.



**When did the conversion take place?**  
June 2001.

**Why did the City have to change the way it disinfects the drinking water?** The US Environmental Protection Agency (EPA) passed new regulations that limit the amount of disinfection by-products in drinking water. Disinfection by-



products are formed in drinking water from the reaction of free chlorine and natural organic matter. EPA has determined that people who consume water containing certain disinfection by-products, greater than the regulated limit, over many years may have an increased risk of getting cancer. The EPA recommends chloramines as a disinfectant and as a means to reduce disinfection by-product formation.

**What disinfection by-products are regulated by EPA?** The new regulations set forth by EPA reduced the average level of permissible trihalomethanes (THMs) from 0.10 mg/L to 0.080 mg/L. EPA has also regulated a new class of disinfection by-products called haloacetic acids (HAA) at an average level of 0.060 mg/L. These chemicals are produced when free chlorine is added to the water. These new regulations went into effect January 1, 2002.

**What are the levels of THMs and HAAs in the drinking water in Sioux Falls?** The levels vary from season to season but the average level of THMs detected range between 0.05 and 0.085 mg/L. This is less than the current level set by EPA but at times

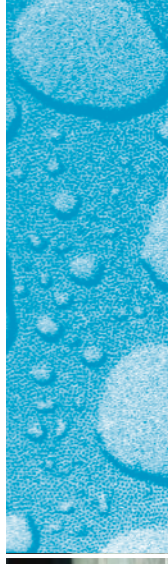
may be greater than the new level that went into effect in 2002.

HAAs also vary from season to season but are detected between 0.02 and 0.04 mg/L throughout the City. This is below the level that went into effect in 2002.

**What are the benefits of using chloramines?**

There are several benefits that chloramines provide. First and foremost, chloramines stop the formation of disinfection by-products in the drinking water. THMs and HAAs are continually formed as long as free chlorine is detected within the water. Ammonia is added to the drinking water after free chlorine has been allowed to properly disinfect the water at the water plant. This means that THMs and HAAs will no longer continue to be formed as the water travels throughout the City. This has significantly lowered the levels of THMs and HAAs detected throughout the City. This has allowed the City to meet the new regulations set forth by EPA.

In addition, chloramines last longer in water than free chlorine, providing increased protection from bacterial contamination. Chloramines also have a less offensive taste and odor than chlorine.



**Are there any adverse effects of using chloramines?** Yes, there are certain adverse effects of which consumers must be made aware. First, chloramines can be harmful when they are present in water used in the dialysis process. Care must be taken to remove all traces of chloramines from water used by dialysis machines. If chloramines are not effectively removed, they can enter the blood stream through the dialysis machine and inhibit the blood from absorbing oxygen.

Chloramines can also be toxic to fish, amphibians, and other aquatic animals. This includes all aquariums in homes, schools, and businesses, lobster tanks at grocery stores, and restaurants as



well as fish containers at bait shops. Care must be taken to remove the chlorine and ammonia when changing water in aquariums.

Chloramines may also breakdown the elastomeric (rubber) materials present within the system faster than chlorine. These elastomeric materials may be present in plumbing fixtures (toilet tank valves) and in some appliances.