

## What Should Fish Tank Owners Do?

Water containing chloramines passes through the gills, and directly enters the bloodstream of fish, amphibian and aquatic reptiles. In the bloodstream it binds to the iron in red blood cells causing the cells to have a reduced capacity for carrying oxygen. So chloramines should be removed from water for fish, amphibian and reptile use.

Fish tank owners, including restaurants and fish markets, should make sure that they have appropriate activated carbon filtration equipment or use water treatment products that neutralize chloramines. These products are easily available through pet and aquarium stores and companies that service commercial fish tanks.



## Are Saltwater Fish and Koi Affected?

Saltwater fish are affected by chloramines. Koi are just as susceptible to being harmed by chloramines as are other fish.

## Does Letting Water Sit for a Few Days Remove Chloramines from Fish Tank or Pond Water?

No. Unlike free chlorine which dissipates, chloramines may take weeks to dissipate. However, if less than one percent of the total water volume of your pond is replaced with chloraminated water at one time, the pond should be able to absorb the chloramines with little impact on fish.

## Will Chloramines Affect the Way I Treat My Swimming Pool?

No. You will still need to maintain a level of free chlorine to keep algae and bacteria from growing in your pool.

## Who Can I Call for More Information?

Fort Wayne City Utilities  
311  
(260) 427-8311

More information can also be found by visiting the EPA's website at:

[www.epa.gov/safewater](http://www.epa.gov/safewater)

# Questions and Answers About Drinking Water Disinfection Using Chloramines

## FORT WAYNE CITY UTILITIES

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[www.cityoffortwayne.org/utilities](http://www.cityoffortwayne.org/utilities)



Mayor Thomas C. Henry

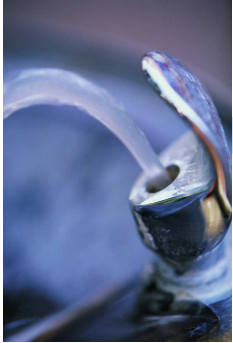
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## What are Chloramines?

Most public drinking water systems must disinfect water before sending it out to customers. A "disinfection residual" must be maintained within the water piping system — even to the farthest point — to make sure that the bacteria killed in the water treatment process cannot regrow in the water mains.

Fort Wayne City Utilities uses chlorine and chlorine dioxide as its primary disinfectants at the water plant and a substance called "chloramines" to maintain the disinfection residual. Creating chloramines involves adding ammonia to the water after it is treated with a liquid chlorine solution. Chloramines are formed and remain in the water to keep it safe when it reaches your home. Creating chloramines



*Chloramines keep drinking water safe from the Filtration Plant to your tap...*

stabilizes the disinfection process. Also water treated with chloramines is less likely to have the distinct chlorine smell associated with the application of chlorine alone. A number of other Indiana cities use chloramines including Indianapolis, Evansville and Terre Haute.

The U. S. Environmental Protection Agency (US EPA) has regulations that limit the concentration of chloramines in drinking water to 4 parts per million. A typical target level for chloramines in public drinking water systems is below 4 parts per million. Generally, the chloramines level should be greater than 0.5 parts per million in 95% of samples taken in a two month period. Fort Wayne samples a number of sites daily to monitor the amount of disinfectant in the water pipeline system. The US EPA also recognizes the ability of chloramines to control the formation of disinfection by-products.

## Is Water Treated with Chloramines Safe?

Yes. Chloraminated water is safe for drinking, bathing, cooking and other everyday uses. Two groups of people do need to take special care with water treated with chloramines — kidney dialysis patients and people who have aquariums.

## How Will Chloramines Affect Me?

Drinking water disinfected with chloramines often has less of a chlorine taste and odor and fewer disinfection by-products than water disinfected with free chlorine.

However, with chloramines, some hospitals and centers that provide kidney dialysis and individuals or businesses that have fish tanks will need to use pre-treatment practices to remove chloramines.

Activated carbon filtration or water treatment products that neutralize chloramines can be effective. Activated carbon filters must contain high quality granular activated carbon and adequate contact time between the water and the carbon is required.

## Will Reverse Osmosis Treatment Units Remove Chloramines?

No. Chloramines pass through reverse osmosis membranes.

## Do Home Water Softeners Remove Chloramines?

No. Softeners are not designed to remove chloramines.

## How are Kidney Dialysis Patients Affected by Chloramines?

Chloramines can diffuse through the reverse osmosis membrane filters that are used by some home hemodialysis machines, and patients undergoing dialysis could be adversely affected. To prevent this, dialysis equipment must be modified to remove chloramines and the total combined chloramines concentration in the treated water must be monitored. Dialysis facilities will need to review their equipment and possibly make adjustments to ensure its continued safe operation. Dialysis facilities commonly use one of two methods to remove chloramines from water — the addition of ascorbic acid or the use of a granular-activated carbon filtration system designed to remove chloramines.

## What Should People With Home Dialysis Machines Do?

Often home dialysis service companies can make the needed modification. Check with your equipment provider and with your physician.

## Is it Safe for Kidney Dialysis Patients to Drink Water Containing Chloramines?

Yes. The digestive process metabolizes chloramines before the substance reaches the bloodstream so everyone can drink, cook with and bathe in water treated with chloramines. It is only when the water interacts directly with the bloodstream, such as in dialysis, that chloramines must be removed.

## Is It Safe to Wash Cuts and Scrapes with the Water?

Yes. Water containing chloramines is useful in cleaning these types of injuries.

## Can Children and Pregnant Women Drink Chloraminated Water?

Yes. It is safe for everyone to drink water treated with chloramines. Chloraminated water is also safe to use in preparing baby formula.

## Can People on Low Sodium Diets or with Diabetes Use Chloraminated Water?

Yes. Chloramines have no adverse impacts for people with those conditions.

## What Are Disinfection By-Products?

Disinfection of public drinking water supplies is absolutely essential to protect public health. But when the disinfectant used to treat drinking water combines with organic matter in source water — such as decaying leaves — disinfection byproducts may be produced. The EPA has established regulations that limit the amount of these byproducts in public water supplies. Fort Wayne's drinking water has always met these standards or is better than federal regulations require.