

Frequently Asked Questions About Chloramines Water Disinfection

Lancaster County Water & Sewer District (LCWSD) receives drinking water from the Catawba River Water Treatment Plant. Starting September 2009, LCWSD will begin disinfecting the drinking water with chloramines instead of chlorine. This will result in lowering the concentration of disinfection byproducts (DBPs) in the system.

Q: What is the disinfection process?

A: Disinfection is a step in the water treatment process to assure the biological safety of water. Chlorine, chloramines and other chemicals can be used as disinfectants.

Q: What is the current disinfectant used in Lancaster County?

A: Historically, chlorine has been the only disinfectant used in Lancaster County.

Q: In addition to providing disinfection, does chlorine participate in any other chemical reaction?

A: During the disinfection process at the treatment plant and while the water is in the disinfection system waiting to be used, chlorine can combine with natural organic matter in the water to form compounds known as Disinfection Byproducts (DBPs), which include Trihalomethanes (THMs) and Haloacetic Acids (HAAs).

Q: Why is a change necessary?

A: The change is necessary for the water distribution system to meet EPA requirements. When using chloramines as a disinfectant, there are fewer chances for DBPs to be formed.

Q: What are Chloramines?

A: Chloramines are formed when ammonia is added to water that contains free chlorine. Depending upon the pH and the amount of ammonia, ammonia reacts to form one of three chloramines compounds.

Q: What are some of the advantages associated with the use of chloramines as a disinfectant?

A: The addition of chloramines to the disinfection process will quench the production of DBPs including THMs and HAAs. The water leaving the treatment plant and entering the distribution systems will have had the bacteria killed or inactivated, but the reaction that produces DBPs will have been stopped and the level of those chemicals in the water

delivered to the customers will be substantially reduced. Additionally, there will be less of a chlorine taste and odor in the water.

Q: Are chloramines safe and are there any negative effects to the changeover?

A: Yes. Chloramines are safe. EPA accepts chloramines as a disinfectant and recognizes its ability to control DBP formation. Chloraminated water is safe for bathing, drinking, cooking and all everyday uses. For the majority of the consumers there will be no negative effects as a result of the change. However, there are two groups of people who need to take special care with chloraminated water: kidney dialysis patients and fish owners.

Q: What methods are available to remove chloramines?

A: Carbon filtration or water treatment products that neutralize chloramines may be used. If you use a carbon filter it must contain high quality granular activated carbon and you must permit sufficient contact time. Follow manufacturer's recommendations for replacement.

Q: Will reverse osmosis remove chloramines?

A: No. Salts can be caught by the permeable membranes and chloramines may pass through the membranes.

Q: Do home water softeners remove chloramines?

A: Most softeners are not designed to remove chloramines.

Q: What about fish tank owners?

A: Fish tank owners, including hobbyists, restaurants and fish markets, who now treat for chlorines in the water, should assure that they have appropriate carbon filtration equipment or use water treatment products that neutralize chloramines. These products are readily available through pet and aquarium stores, as well as from companies that service commercial fish tanks.

Q: Does letting water sit for a few days remove chloramines?

A: No. Unlike chlorine, which breaks up when water sits for a few days, chloramines may take weeks to disappear. If you choose not to use a de-chloraminating chemical, install a granular activated carbon filter and allow sufficient contact time between the water and filter.

Q: Will chloramines affect the way I treat my swimming pool?

A: No. You will still need a free chlorine residual to prevent algae and bacteria growths.

Q: How are kidney dialysis patients affected by chloramines?

A: Chloramines can diffuse through the reverse osmosis membrane filters utilized by some hemo-dialysis machines, and patients undergoing kidney dialysis could be adversely affected. To prevent this, dialysis equipment must be adjusted to remove chloramines and the treated water must be monitored to measure the final chloramines concentration. Dialysis facilities must review their dialysis treatment equipment to determine its continued safe operation.

Q: What should people with home dialysis machines do to remove chloramines?

A: Check with your physician. Often times, home dialysis service companies can make the needed modifications.

Q: Is it safe for kidney dialysis patients to drink water containing chloramines?

A: Yes. Because the digestive process metabolizes chloramines before it reaches the bloodstream, everyone can drink chloraminated water. Kidney dialysis patients can drink, cook, and bath in chloraminated water. It's only when water interacts directly with the blood stream, as in dialysis or in a fish's gill structure, that chloramines must be removed.

Q: What does this mean to you as a kidney dialysis patient?

A: Drinking either chlorinated or chloraminated water is safe. Chlorine and chloramines 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 pre-treated for dialysis. Depending on the method of chlorine removal your dialysis machine uses now, some modifications may be necessary.

Q: Why do kidney dialysis patients need to take special precautions?

A: In the dialysis process, the compounds in water come in contact with the blood across a permeable membrane. Chloramines in that water would be harmful, just as chlorine is harmful and must be removed from water used in kidney 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 the dialysis machines. They are informed of this change.

Q: Do medical centers, hospitals, and clinics that perform kidney dialysis know about the change to chloramines?

A: Yes. All medical facilities have been notified of the change. All dialysis systems prepare the water being used for dialysis. If you have any concerns about this process, talk with your physician.

Q: Can children and pregnant women drink chloraminated water?

A: Yes, everyone can drink water containing chloramines.

Q: Can people on low-sodium diets or with diabetes use chloraminated water?

A: Yes. People with those medical problems can use chloraminated water for all purposes.

Q: How about washing an open wound with chloraminated water?

A: Even large amounts of chloraminated water used in cleaning a cut would have no effect because virtually no water actually enters the blood stream that way.

Q: Who can I call if I have more questions?

A: Call LCWSD's Quality Control Coordinator at 803-416-5264 or you may contact the Catawba River Water Treatment Plant at 803-286-5949.