

Citizens Concerned About Chloramine (CCAC)

San Francisco Bay Area, California <http://www.chloramine.org> 650 328-0424

CCAC Overview

January 31, 2007

A New Disinfectant

In February 2004 the San Francisco Public Utility Commission (SFPUC) added the new disinfectant, chloramine, (a combination of chlorine and ammonia) into the water distribution system. Since then, chloramine in the water supply water has caused severe health problems, environmental risks, plumbing damage, and increased business costs. The public was not consulted in the decision to use chloramine in place of chlorine although there were other options.

Health Effects

Many residents, unaware of the change in disinfection, suddenly began to experience adverse health effects-skin reactions (rashes, welts, blistering, dry skin, cracking, chapping, peeling, bleeding, burning sensations, scarring), respiratory symptoms (sneezing, wheezing, coughing, sinus/nasal congestion, asthma-like conditions), and digestive disorders (acid reflux and symptoms similar to IBS) plus dry eye and dry mouth. Those with suppressed immune systems (HIV Aids, chemotherapy patients, and infants under six months of age) must have their water boiled over ten minutes to kill the pathogens in the water. The World Health Organization (WHO) states that chloramine is 2000 times less effective at killing E. coli, and 100,000 times less effective at killing rotaviruses than chlorine.

The Environmental Protection Agency (EPA) states that NO scientific studies on the skin or respiratory effects of chloramine have ever been conducted. Also the cancer studies on chloramine itself are so limited that they cannot be used to determine if chloramine, or any of its disinfection byproducts are carcinogens.

Filtration

Chloramine is extremely difficult and expensive to filter out, particularly for bathing and showering purposes. The greatest exposure to chloramine in the tap water is through bathing, showering and breathing it in indoor air rather than from drinking it. No showerhead filters work to remove chloramine, and sink filters only work on cold-water for drinking. For high flow uses like showering or bathing, a whole house filtration system that includes an extensive carbon and reverse osmosis or cation filter is necessary to remove both the chlorine and the ammonia. However, a whole house filtration system costs \$15,000 plus \$1,200 for yearly maintenance for a single home. For an apartment building, filtration can cost between \$80,000 to \$120,000 or more. The costs are too much for people to afford, especially for those on fixed incomes. For those suffering from respiratory effects such as asthma, a whole house filtration system is imperative.

Environmental Damage

Chloramine has contributed to the endangerment of wildlife habitats and is killing frogs and other amphibians, reptiles, fish and other aquatic and marine life. Discharges from water main breakages and drainage from storm drains run unchecked into our creeks, streams, rivers and marine areas, and are poorly or inadequately treated or monitored. The Canadian CEPA ruled that chloramine is 'toxic' to the environment as defined in the Canadian Environmental Protection Act, Section 64 (CEPA 1999). Creeks in areas served by the East Bay Municipal Utilities District and the Marin Municipal Water District have already experienced frog and fish habitat destruction from chloraminated water main breaks.

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Plumbing Damages and Costs

Chloramine has caused thousands to tens of thousands of dollars in plumbing repairs to homeowners. Chloramine corrodes rubber-plumbing parts such as rubber toilet flappers and gaskets, rubber hoses, and rubber fittings in dishwashers and water heaters. It leaches lead from lead-tin soldered joints in pipes. Pinhole pitting in copper pipes due to chloramine corrosion causes small water leaks in walls leading to mold growth. Some molds are highly toxic to humans and can endanger the health of individuals, often permanently. Insurance companies do not cover damage from mold. As a result, some homeowners lose their homes. Chloramine de-elasticizes plastic polymer (pvc) pipes, leaching possible carcinogens from the plastic into drinking water. Polymer pipes become brittle and shatter when de-elasticized, damaging property and releasing chloraminated water into the environment.

Cost to Businesses

Finally, chloramine affects businesses that use water to process their products. Expensive and extensive filtration systems to remove chloramine must be installed and maintained by microchip manufacturers, breweries, soft drink producers, pet store owners, markets and restaurants where live fish or shellfish are sold or used, color photo labs, and kidney dialysis machine operators. All these extra costs are passed on to the public.

Conclusions and Recommendations

Decisions on disinfection programs should be based on complete and sound research before implementation. While chlorine is well understood, chloramine is not. Although the use of chloramine reduces certain disinfection byproducts like trihalomethanes (THMs), very little is known about its health effects.

It is unconscionable that water utilities are using a disinfectant that has not been properly tested. Chloramine is already severely compromising the health and well-being of many people exposed to it in their water. Evidence of this mounts daily as more and more water systems around the country convert to chloramine.

Therefore, CCAC recommends that the use of chloramine be discontinued, until the necessary studies--skin, respiratory, and digestive--are conducted.

As an alternative to chloramine, CCAC advocates the prefiltration of organic matter before disinfection that the World Health Organization (WHO) recommends to control trihalomethanes (THMs). The use of prefiltration will allow us to continue to use chlorine which has been well tolerated for decades, is easily and inexpensively filtered out, and has been studied extensively. This eliminates all the harmful effects that chloramine is causing.

Water should be safe for everyone.

About CCAC

Citizens Concerned About Chloramine (CCAC) was founded in June 2004 and is a non-profit organization dedicated to raising the public's awareness of the human health effects of chloramine as a disinfectant in the water supply. CCAC supports scientific studies to explore the effects of chloramine and supports legislation to protect the quality of water. <http://www.chloramine.org>, 650 328-0424