



City of Charlotte Department of Public Works

Copper in Drinking Water

Is our drinking water safe? The present and future of our community depends on the availability of clean water. Reliable and adequate sources of potable water are critical to public health and to the ability of Charlotte to sustain itself over time.



The City of Charlotte has operated its own drinking water system since the 1800s. Many improvements have been made to the system over the years, including the replacement of wood watermain with cast iron and now ductile iron pipe. Today, while we still have a large portion of watermain over 100 years old, **our drinking water remains safe**. We are continually investing in maintenance and capital improvements to provide clean, affordable and safe water. In 1991 in response to new Federal regulations, the City started to test for lead and copper at many of the residences. Corrosion controlling phosphate has been added to the system since 1991 in response to the new regulations and completed testing.



What is Copper?

Copper is a naturally occurring metal found in rock, soil, water and sediment. Pure copper is red-orange but becomes blue-green when exposed to air and water. For centuries, humans have used it to produce copper alloys including brass and bronze. Today, copper is widely used in the production of many items including pennies, electrical wiring, and plumbing materials such as household water pipes.

How Can Copper Affect My Health? A small amount of copper is essential for good health. The Food and Drug Administration recommends a dietary allowance of 2 milligrams (mg) of copper a day. Major food sources of copper are shellfish, nuts, grains, leafy vegetables, mushrooms, chocolate, liver, and some fruits. Exposure to high doses of copper can cause health problems. Short-term exposure to high levels of copper can cause gastrointestinal distress. Long-term exposure and severe cases of copper poisoning can cause anemia and disrupt liver and kidney functions. While some of the copper you consume rapidly enters the bloodstream, your body is very good at preventing high levels of copper from entering the bloodstream; it will excrete excess copper after several days. Children under one year old and people with Wilson's or Menke's disease are more vulnerable to the effects of excess copper.

How Does Copper Get Into Drinking Water?

Copper rarely occurs naturally in the source water supply for drinking systems. The major source of copper in drinking water is corrosion of household plumbing, faucets, and water fixtures. Water absorbs copper as it leaches from plumbing materials such as pipes, fittings, and brass faucets. The amount of copper in your water depends on the types and amounts of minerals in the water, how long water stays in the pipes, the water temperature, and acidity.



How Do I Reduce My Exposure to Copper?

Copper works its way into the water by dissolving from copper pipes in the household plumbing. The longer the water has stood idle in the pipes, the more copper it is likely to have absorbed. Any time the water has not been used for more than six hours- overnight, for example, or during the day when people have gone to school or work- it should be cleared from the pipes before being used for drinking or cooking. This can be achieved by letting the cold water faucet run until you can feel the water getting colder- usually 30 to 60 seconds. This should be done before taking drinking water from any faucet in the house.

In addition, hot water dissolves copper more quickly than cold water; as a result, water to be used for cooking or drinking should not be drawn from the hot water tap. If you need hot water for cooking or drinking, take water from the cold tap and heat it. **It is especially important not to use the hot water tap for making baby formula.**

Indications of Copper - Low concentrations of copper in drinking water may not noticeably alter the taste, color, or smell of water. At low concentrations, copper in drinking water may cause no health symptoms. At high concentrations, it can cause a bitter metallic taste in water and result in blue-green stains on plumbing fixtures.

Water Sampling - The City samples and tests drinking water at multiple private residences and businesses throughout the community on a routine basis. Twenty samples in 36 months are required for the detection of lead and copper. All testing is done in accordance with EPA Standards and the sampling schedule provided by the MDEQ. Annual sampling results along with additional information can be found in the Consumer Confidence Report that is published in the local paper by July 1 of each year. A link can also be found on the City's website <http://www.charlottemi.org/serviceadministration/public-works/utilities/>.

Contact Information

For further information, please contact Matt Griffith at the Charlotte Department of Public Works- Utility Division at (517) 543-8860.

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