



Manganese in Drinking Water

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This informational bulletin was prepared by H2O Systems, Inc. (H2O), for use by our consumers in understanding the source and effects of Manganese in their drinking water. It is not to be assumed as an official document or reference material.

Some of the content in this bulletin was taken from the reference materials listed below. Other content is derived from our industry knowledge after 20+ years as a Public Water Provider in St. Tammany Parish, LA.

If you have any questions concerning this information, please contact our office at (985)626-5132 or address your questions to info@h2osystemsinc.com.

"H2O Systems, Inc. is committed to providing our customer with the best quality water that meets all Federal & State Standards. Please visit our website for information pertaining to your water and/or sewer services."

REFERENCE MATERIALS:

Health Effects Support Document for Manganese published by EPA in Feb 2003.

Drinking Water Health Advisory for Manganese published by EPA in Jan 2004.

These documents can be viewed in their entirety @ <http://water.epa.gov/drink>

Background Information

Manganese is a common element found in minerals, rocks, and soil. It is also a normal part of a healthy diet and is an essential nutrient for many living organisms, including humans. Based on data collected between 1984 and 1986 from 989 community public water systems (PWSs) serviced by groundwater in 49 states, 68% of PWSs reported detectable levels of manganese in their water. The greatest exposure to manganese is usually from food, and intake from drinking water is normally substantially lower than intake from food. In Feb 2003, the Environmental Protection Agency (EPA) published a Health Effects Support Document for Manganese. Based on EPA's evaluation, the determination was "Do Not Regulate". This determination was based on EPA's belief that a meaningful opportunity for health risk reduction does not exist for persons served by PWSs because the average dietary intake of manganese exceeds the contribution normally found in public drinking water systems.

Why is Manganese a Concern?

Manganese in drinking water may cause taste, odor, and color problems and stain clothes and fixtures inside the home. Over time, it will cause brownish-black slime in toilet tanks and will form coatings on water pipes in the distribution system and inside the water lines in homes that may slough off as a black precipitate suspended in the water.

Because of these properties, EPA established a Secondary Contaminant Level (SCL) of 0.05 mg/L for manganese. SCLs are not federally enforceable and are, instead, intended as guidelines for PWSs. H2O is glad to assure our customers that if our water has manganese levels close to or greater than the 0.05 mg/L SCL, it is treated so that the manganese in the water actually distributed to customers is less than 0.05 mg/L .

What is H2O doing to prevent Manganese Problems?

The majority of problems associated with manganese occur when the mineral comes into contact with CHLORINE. Under its Safe Drinking Water Act authority, EPA mandates chlorine disinfection by all PWSs. Recently, H2O's chlorine disinfection activities have resulted in increased manganese complaints throughout our service areas.

H2O is aware of this problem and has voluntarily implemented manganese treatment processes at many of our well sites. The treatment process involves the addition of a sequestering agent to the raw water prior to chlorination. This process prevents the reaction between manganese and chlorine that gives the water the brownish-tea color.

What is H2O doing to prevent Manganese Problems? (cont)

The treatment process must be closely monitored to assure that the correct amount of sequestering agent is added to the raw water, while also considering the amount of chlorine that must be added to meet federal standards and the amount of water that is consumed within the service area.

Our water treatment specialist maintains the correct balance between these different variables by adjusting the amount of sequestering agent being applied to each individual system during weekly site visits.

H2O also has initiated fire hydrant flushing in several of our service areas with low water consumption. Fire hydrants in these areas are flushed regularly. This is necessary because in low water consumption areas, the treated water remains in the distribution system for longer periods; this allows the manganese to have a longer time to react with the chlorine, which, in turn, results in increased discoloration. By flushing the water in the distribution system through fire hydrants, any water that has remained in the system too long is purged from the system before it can be consumed by our customers.

Water treatment and fire hydrant flushing do not eliminate the staining properties or buildups of manganese, but they do optimize the clarity of the water being provided to our customers' homes. See our recommendations below to improve the clarity of the water inside your home.

How can I help improve my water?

As a consumer, we recommend the following actions that will help improve the quality of water in your home:

- Never use CHLORINE products for stain removal on fixtures or appliances and never use a chlorine-based product in your laundry. To remove manganese stains, use a "citrus-based" stain removal product. These can be found in many local stores.
- Flush your house water lines every 3-4 months, or more frequently if needed, using the method described on our website (www.h2osystemsinc.com). By flushing your house water lines in this fashion, you will eliminate some of the manganese buildups. You also will eliminate most odor and taste problems with your water.
- Routinely -- at least once per week -- turn on the faucets and/or jets in large tubs and/or Jacuzzis. As water sits in your house lines, the chlorine continues to react with the manganese, causing darker colored water the longer the water is not used. The buildup of manganese "slime" also will occur in areas of low use, causing a black substance to appear as suspended matter in the water; this will leave residue in tubs and/or Jacuzzis when they are drained.
- Sprinkler systems should be used at least once per week, even during winter months. Although these systems are outside your home, they do allow water to sit in your lines and that will cause discoloration problems.
- Home filtration and/or treatment systems, OF ANY TYPE, should be maintained according to the manufacturer's recommendations. Home filtration and/or treatment systems are a source of problems with water quality if not properly maintained and operated according to manufacturer's standards.
- If you are experiencing discolored water from your hot water faucets only, drain and clean your hot water heater according to the manufacturer's recommendations.
- When returning home from extended absences (vacation, holidays, etc.), flush your house lines prior to use, especially prior to washing clothes or running tubs of water. You also should more frequently flush in areas of your home that you may not use routinely, such as guest bathrooms, pool houses, etc.

"H2O Systems, Inc. recommends using the websites, <http://water.epa.gov/drink> (EPA website) or <http://new.dhh.louisiana.gov/index.cfm/page/963> (DHH website) for information on Safe Drinking Water.
