



What You Need to Know About Manganese in Private Well Water



This fact sheet is intended to help individuals who have high levels of manganese in their water understand the health risks and evaluate the need for water treatment to remove manganese. Manganese is a mineral that naturally occurs in rocks, soil, groundwater, surface water, and food and is a normal part of the human diet. It exists in well water in Connecticut as a naturally occurring groundwater mineral, but may also be present due to pollution sources. At concentrations greater than 0.05 milligrams per liter (mg/L), manganese may cause a noticeable color, odor, or taste in water. However, potential health effects from manganese are not a concern until concentrations are approximately six times higher.

The Connecticut Department of Public Health (CT DPH) has set a drinking water Action Level (AL) for manganese of 0.3 mg/L to protect against potential manganese toxicity. This AL is consistent with the United States Environmental Protection Agency's (US EPA) lifetime health advisory level for manganese in drinking water. If your well water has manganese at a concentration greater than 0.3 mg/L, CT DPH recommends that you treat your water to remove the manganese or use bottled water for drinking and cooking.

How Can Manganese Affect my Health?

Manganese is necessary for good health; it aids digestion, increases bone strength and strengthens immune system function. As such, too little or too much intake of manganese may be harmful. Breathing high concentrations of manganese dust and fumes (e.g., welding) over the course of years has been associated with toxicity to the nervous system in workers, producing a syndrome that resembles Parkinson's Disease. It is not clear if drinking water with high concentrations of manganese can also cause harm to the nervous system.

Is Manganese of Particular Concern for Children?



Yes, and especially so for bottle-fed infants. Infant formulas contain manganese, and if prepared with water that also contains manganese, the infant may get a higher amount than the rest of the family. In addition, infants appear to absorb more manganese than older people but excrete less. This adds up to a greater potential for exposure in the very young. Since manganese's effects on the developing nervous system have not been adequately studied, it is especially important for pregnant women and young children to have drinking water that is below the manganese Action Level of 0.3 mg/L.

How Do I Know If I Have Manganese In My Water?

You may suspect that manganese is in your water if the water is discolored (brownish-red), causes staining of plumbing fixtures (faucets, sinks) or clothing, or has an off-taste or odor. If this is the case, you should have your water tested for manganese by a [state-certified laboratory](#). When you get the results, you should contact your local health department or DPH to help you interpret the results.



What Are The Background Or Normal Levels Of Manganese In Groundwater?

The levels of manganese in groundwater from natural leaching processes can vary widely depending upon the types of rock and minerals present at the water table. Typically, manganese concentrations from natural processes are low but can range up to 1.5 mg/L or higher. Sources of pollution rich in organic matter (e.g., runoff from landfills, compost, brush or silage piles, or chemicals such as gasoline) can add to the background level by increasing manganese release from soil or bedrock into groundwater.

How Else Can I Be Exposed to Manganese?

Manganese exposure can come from air, food, and water. Manganese is a common trace element found in foods (e.g., nuts, beans, grains and teas). Manganese is also added to some dietary supplements. People usually get enough manganese through their diet alone. When infant formulas are prepared with water that contains high concentrations of manganese (above 0.3 mg/L), the infant may get more manganese than their bodies need. Bathing and showering in manganese-containing water does not increase your exposure since manganese is poorly absorbed across the skin and doesn't get into the air from water.

How Can I Decrease My Family's Exposure to Manganese?

If you have a water concentration greater than 0.3 mg/L, you should install a water treatment system or drink bottled water and use it for all food preparation, especially for making infant formula. Appropriate and common treatment options include, oxidizing filters, ion exchange, aeration followed by filtration, and chemical oxidization followed by filtration. The concentration of manganese in the water and its physical state in the water will help determine the best treatment design. For more information regarding treatment options, please contact the [CT DPH Private Well Program](#), (860) 509-8401 or [your Local Health Department](#). If the manganese water concentration suddenly increases or the concentration is above 1.0 mg/L, you should contact your local health department or the Connecticut Department of Energy and Environmental Protection (CT DEEP) at 860-424-3705. CT DEEP will follow up to determine whether or not an investigation is necessary given the circumstances.

Are There Federal Standards For Manganese In Drinking Water?

There is no enforceable federal drinking water standard (Maximum Contaminant Level or MCL) for manganese. The US EPA has set a secondary standard of 0.05 mg/L which is intended to let the public know that manganese can affect water quality (unacceptable taste, color and/or odor) at this level. This secondary standard is not health-based and is not enforceable. In the absence of a federal standard, CT DPH has adopted the US EPA's lifetime advisory level of 0.3 mg/L as our Action Level for private well water.



FOR MORE INFORMATION



Health Questions:

CT Dept. of Public Health Environmental Health Section
[Environmental & Occupational Health Assessment Program](#)
(860) 509-7740

Treatment Questions:

For technical advice on well water construction, maintenance, quality or treatment contact your [Local Health Department](#) or the [Department of Public Health Private Well Program](#) at (860) 509-8401.

Certified Testing Labs: [DPH Environmental Laboratories](#)