



Manganese In Your Environment: What You Should Know

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Manganese is a naturally occurring metal found in air, soil, and water. Everyone is exposed to small amounts each day, and our bodies need some manganese to stay healthy. But when manganese levels in drinking water are too high, it can pose health risks, especially for infants and young children. Here's what you should know about manganese:

What Is Manganese?

Manganese is an essential nutrient that supports growth, bone development, and metabolism. While low levels of manganese are safe, long-term exposure to higher levels of manganese may cause learning or behavioral changes in young children. The Rhode Island Department of Health (RIDOH) has set a do not drink threshold for manganese at 0.3 milligrams per liter (mg/L) for children under 1 year old. People older than 1 year can tolerate more manganese, so the do not drink threshold is 1.0 mg/L.

How Does Manganese Get Into Water?

As water moves through the ground, it can pick up manganese, which may then settle as sediment in water pipes. Disturbances like water main breaks, hydrant use, or pipe flushing can stir up sediment, temporarily increasing manganese levels and causing discoloration in tap water. Manganese does not always cause discoloration in water and elevated levels of manganese can occur in both small and large water systems.

Health Effects of Manganese

Too much manganese can lead to neurological effects, especially in infants and young children. Long-term exposure to levels above 0.3 mg/L in water may impair memory, attention, and learning in children, and very high long-term exposures have been associated with symptoms like speech difficulties, loss of coordination, and mood swings. Infants under 1 year are especially vulnerable, and guidance recommends they not consume water with more than 0.3 mg/L manganese for over 10 days. Infant formula mixed with water high in manganese significantly increases exposure risk.

Considerations During Pregnancy and Breastfeeding

If you are healthy and breastfeeding, you should continue to do so, even if your water has concentrations of manganese between 0.3 mg/L and 1.0 mg/L. There is no correlation between manganese levels in water and in breast milk. Women who are pregnant or have health concerns should discuss their water test results with a healthcare professional.

How To Protect Yourself

If you receive water from a public water system, check your water system's Consumer Confidence Report (CCR) for the level of manganese in your water. You can request a copy of the CCR directly from the water system. If your place of employment or school is a water system, you can look for a posted water advisory notice or check the RIDOH webpage:

<https://health.ri.gov/water-advisories>. If you have a private well, you can have your water tested (see the link below) and contact the RIDOH Private Wells Program (DOH.RIDWQ@health.ri.gov) for help with understanding the results.

If you are concerned about elevated manganese levels, it's important to take steps to protect your health. You should:

- Install a certified water treatment system that removes manganese (such as reverse osmosis or a filter certified under NSF/ANSI standards).
- Clean and maintain the treatment system as the manufacturer recommends.
- Avoid using visibly discolored water for drinking or cooking.
- Bring this fact sheet to your healthcare appointment if you are pregnant, breastfeeding, or have health concerns.
- Test your well every 3 to 5 years for manganese, metals, corrosivity, and hardness; find certified labs on the RIDOH Private Wells website: <https://health.ri.gov/private-wells>.
- Use bottled or another safe water source for drinking and cooking.
- Check the RIDOH Drinking Water Quality webpage to see ongoing drinking water advisories and learn what to do if you receive a do not drink notice: <https://health.ri.gov/water-advisories>.

If you believe you've been exposed to excessive manganese and are experiencing health concerns, contact your primary care provider. For questions about health effects associated with exposure to manganese in Rhode Island, contact the Environmental Health Risk Assessment Program at the Rhode Island Department of Health at 401-222-7746 or RIDOH.EHRAP@health.ri.gov.

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