Frequently Asked Questions about Manganese in Drinking Water

What is manganese and where does it come from?

Manganese is a common, naturally- occurring mineral found in rocks, soil, groundwater, and surface water. Manganese is a natural component of most foods. Manganese is an essential nutrient, and eating a small amount of it each day is important to stay healthy.

Why are the drinking water advisories for manganese being issued now?

Recent guidance from EPA has prompted this action. Manganese is an unregulated contaminant that EPA is collecting occurrence information on it to determine if establishing an enforceable national primary drinking water standard is warranted. The EPA health advisory levels for manganese were established in 2004. Based on more recent health studies, EPA has elevated their interest in manganese which is why they are collecting additional occurrence data through their fourth round of monitoring under their Unregulated Contaminant Monitoring Rule (UCMR4). UCMR4 requires public notice of test results obtained through UCMR4. As a precautionary effort to protect your health while further scientific studies and research are being reviewed and conducted, EPA recommended that States work with systems to notify the public when an existing health advisory level has been exceeded. Typically, UCMR test results can be included in a water systems annual water quality report. Rather than wait for that reporting deadline, a separate drinking water advisory notice will be issued so all customers are informed about their water quality sooner.

What level of manganese is a concern in drinking water?

One-day and 10-day health advisories are considered acute or short-term levels that are not expected to cause adverse effects for up to one or ten days of exposure. These health advisories are intended to protect a 10-kg (22 pound) child consuming 1 liter (1 Quart) of water per day.

- For infants up to 6 months of age, EPA identified that water with manganese levels equal to or less than 0.3 mg/L for more than 10 days have shown no adverse health effects and can be used for making formula
- For the general population, EPA identified that water with manganese levels equal to or less than 1.0 mg/L over a 10-day exposure has shown no adverse health effects

Lifetime health advisories are considered chronic or long-term levels that are not expected to cause adverse effects after a lifetime of exposure. These health advisories are intended to protect a 70-kg (154 pound) adult consuming 2 liters of water per day.

- For the general population, EPA identified that water with manganese levels equal to or less than 0.3 mg/L over a lifetime exposure has shown no adverse health effects.

The EPA health advisory levels of 0.3 mg/L and 1 mg/L were set based upon typical daily dietary manganese intake levels not known to be associated with adverse health effects. This does not imply that intakes above these levels will necessarily cause health problems. As a precaution, the general population should consider limiting their consumption of drinking water when levels of manganese are above the EPA health advisory to decrease their exposures and to decrease the possibility of adverse neurological effects.

How long is manganese retained in a person? Does it bioaccumulate?

A person has a number of biological systems operating that control absorption of manganese from the diet and from manganese in drinking water. There are other biological systems that are responsible for removing manganese from the body. These biological control systems maintain the internal concentration of manganese within a narrow range. If excess manganese is absorbed, it is usually eliminated within 24 hours. Manganese typically does not bioaccumulate in a person.

Can I use the water to wash dishes and do laundry? Yes.

Can I bathe, shower, or wash my hands with the water?

Yes. Manganese is poorly absorbed through the skin.

Sometimes I see black specs in my water, is this Manganese and does it mean I have high levels of Manganese in my water?

Black specs in your water is most likely manganese. It doesn't necessarily mean you have high levels of Manganese all the time. Most water utilities flush their water mains in the spring and fall to remove sediment and improve water quality. If you're in an area that doesn't have elevated manganese you can still have black specs in your water until the flushing process is completed

I have a black ring in my toilet and sink, is this Manganese and how do I clean it?
It is most likely Manganese, there are some helpful suggestions below on how to clean it.

Some helpful suggestions:

-Cream of Tartar Paste. Pour 1 cup of cream of tartar into a bowl.
If your using Cream of Tartar Paste, scrub lightly, an abrasive product can actually make it easier for the Manganese to adhere to the surface.
-Baking Soda and White Vinegar. Fill a bowl with 1 cup of baking soda and pour in 1/4 cup...
-Trisodium Phosphate and Water. Fill a bucket with 1 gallon of water, and add 2 to 4 tbsps.

Will a water softener remove iron and manganese?

Conventional water softeners are sometimes effective for removing iron and small amounts of manganese. Water softeners are typically used to remove calcium and magnesium hardness in water by an exchange process. ... The iron and manganese are then removed from the softener resin bed through backwashing and regeneration.

Do we consume more Manganese from food or water? The average person consumes more more Manganese from food than water.

Examples: Consuming one serving of nuts (30 g) see picture below, it is a small amount would result in Mn of up to 1.40 mg. To get the same amount from water at 0.300 mg/L you'd have to drink 4.66 Liters or 1.23 gallons of water.

The two slices of bread that you used to make a sandwich provided you with 1.25 mg of Mn, which equates to 4.25 Liters or 1.12 gallons of water at a Mn concentration of 0.300 mg/L.

What color is manganese in water?

In deep wells, where oxygen content is low, the iron/manganese-bearing water is clear and colorless (the iron and manganese are dissolved). Water from the tap may be clear, but when exposed to air, iron and manganese are oxidized and change from colorless, dissolved forms to colored, solid forms.