



Chemicals in Private Drinking Water Wells Fact Sheet

Florida Department of Health, Division of Environmental Health

This fact sheet discusses possible health risk from exposure to low levels of manganese typically found in private drinking water wells.

Manganese

What is manganese?

Manganese is a naturally occurring metal. It is found in many types of rocks. Pesticides, such as maneb or mancozeb also contain manganese. Methylcyclopentadienyl manganese tricarbonyl (MMT) is a fuel additive in some gasolines.

Manganese is an essential trace element and is necessary for good health. Manganese is in foods, like grains and cereals. It is found in high amounts in other foods like tea. A small amount of manganese in the diet is necessary for good health.

How might I be exposed to manganese in my drinking water?

- Natural deposits
- Disposal of wastes
- Deposits from airborne sources.

What is the standard for manganese in drinking water?

The Florida Department of Environmental Protection (DEP) drinking water standard for manganese is 50 micrograms per liter (50 ug/L). This secondary drinking water standard is based on taste and appearance rather than on any harmful health effect. No adverse health effects are generally associated with manganese in drinking water. At higher levels, there may be a change in the look, smell, or color of the water. There is no required sampling of private drinking water wells.

How can manganese affect my health?

Drinking water standards are set at very low levels. Drinking water every day at or below the standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that doesn’t cause illness. Then, to be on the safe side, scientists set drinking water standards hundreds or thousands of times less than the “no-effect level.” Therefore, drinking water with levels slightly above the standard for a short time period does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?

- How often did the exposure occur?
- What was the route of exposure? (Did someone eat, drink or breathe the chemical into their body?)

Health effects are also determined by a number of personal factors. From person to person, how someone is affected by a chemical exposure ranges widely. The drinking water standard is set to protect the most sensitive individuals. Health effects are also determined by a number of personal factors. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are they to be affected by exposure to a chemical, in general?

Daily intake of small amounts of manganese is needed for growth and good health in children. It is constantly present in the mother and is available to the developing fetus during pregnancy. Manganese is also transferred from a nursing mother to her infant in breast milk at levels that are appropriate for proper development.

In rare cases, some people lose the ability to remove excess manganese from their bodies. In these cases, they develop nervous system problems from manganese exposure.

How likely is manganese to cause cancer?

The U.S. Environmental Protection Agency (EPA) has determined that manganese is not classifiable as to human carcinogenicity.

Is there a medical test to see if I have been exposed to manganese?

Tests are available that show levels of manganese in different body fluids. Levels of manganese in blood, urine, feces, and scalp hair can be used to determine exposure to excess levels of manganese by testing whether levels of the metal in your body tissues are greater than normal. However, these tests cannot predict how the levels in your tissues will affect your health. Your doctor can take samples and send them to a testing laboratory.

Should I continue to use my drinking water if manganese is found?

You can continue to use your water without health concerns. Manganese in drinking water is not likely to cause illness. Excess manganese can, however, cause taste and staining problems.

Because taste and staining problems increase as the manganese level increases, you should seek drinking water that meets the drinking water standard.

For additional health information: Please call the Florida Department of Health toll-free help line 877-798-2772 weekdays from 10:00 a.m. to 7:00 pm. Outside of Florida, please call 850-245-4299 between 8:00 a.m. and 5:00 p.m. Or visit us online at: www.myfloridaeh.com

For more information about the health effects from exposure to this chemical in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for manganese at: <http://www.atsdr.cdc.gov/tfacts151.pdf>